

ANALYSIS OF FACTORS RELATING TO
ADJUSTMENT TO BLINDNESS

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
Edward A. Fitting
1957



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Edward A. Fitting

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by

Edward A. Fitting

A THESIS

Submitted to the School for Advanced Graduate Studies of
Michigan State University of Agriculture and
Applied Science in partial fulfillment of
the requirements for the degree of

DOCTOR OF PHILOSOPHY

College of Education

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AN ABSTRACT

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Approved

Leonard J. Lukes

This study evaluated and analyzed various factors which had a relationship to blind individuals' level of adjustment to problems of living in a sighted society. Adjustment as defined for the purpose of this investigation was primarily concerned with psychological problems. After some preliminary research, an investigation was undertaken of some of the common areas in which problems were frequently encountered which were defined as follows:

A. Level of morale; which dealt with the individual's confidence in himself to cope with problems he encountered.

B. Outlook toward sighted people; which was concerned with the extent to which the individual possessed a wholesome attitude toward his relationship with sighted people.

C. Outlook toward problems of blindness; which focused on the individual's concept of himself as a blind person.

D. Family relationships; which dealt with attitudes toward the family and how personality developed in this situation.

E. Attitude toward training; which evaluated the outlook on training as a method of solving problems encountered.

F. Occupational outlook; which dealt with attitudes toward employers and toward self as an employee.

A study of services provided in adjustment training centers indicated the goal to be primarily that of altering behavior patterns of blind people who had not achieved a satisfactory level of adjustment. The hypothesis developed that controlled educational experiences and environmental circumstances specifically designed to meet the problems of maladjusted blind individuals could be effective in altering the behavior pattern of such individuals.

The initial step was that of designing a scale which purported to measure attitudes of blind people in the six areas outlined above. A rating scale was also designed to obtain an evaluation from instructors on individual's adjustment to provide an external criterion as a means of validating the adjustment scale. A pilot study was carried out using these instruments in nine adjustment training centers throughout the United States. This resulted in the collection of data on 155 trainees undergoing training at the time. The data thus obtained were analyzed to gain further insight into adjustment problems of blind people. A statistical analysis of the adjustment scale indicated a satisfactory level of reliability and validity. An item analysis of the scale permitted further insight into the strengths and weaknesses of the instrument. A detailed analysis was also made of the relationship of adjustment to environmental circumstances and sociological conditions.

EDWARD A. FITTING

ABSTRACT

This revealed the fact that there was a strong relationship between desirable adjustment and favorable training experience. The more specifically training was designed to meet the individual's problems, the better was the level of adjustment achieved.

A follow-up study was carried out with a selected sample after a two year interval. This permitted further analysis of the instrument which corroborated the previous conclusion of satisfactory level of reliability and validity. This also provided data on intelligence level of trainees. Analysis of these data indicated a positive relationship between adjustment and intelligence. The difference in adjustment level between races was insignificant in the follow-up study. The relationship of adjustment level to occupational success was marked among whites but insignificant among Negroes. The most interesting information revealed by the follow-up study was the fact that with but one exception individuals either maintained or received superior adjustment scores compared to those received two years earlier while undergoing training. This provided encouraging evidence to substantiate the hypothesis that controlled educational experiences and environmental circumstances specifically designed to assist these people were effective as a means of altering the behavior pattern.

ACKNOWLEDGMENT

The writer wishes to express his appreciation for the assistance provided by the many people concerned in making this project possible. Special recognition should be given to Dr. Wilma Donahue, Chairman of the Division of Gerontology, Institute for Human Adjustment, University of Michigan, Ann Arbor, Michigan, who was largely responsible for its inception. It was her responsibility to select the original research committee and to get the project under way. This committee included Dr. Alvin F. Zander, Director of the Research Center for Group Dynamics, Dr. Eugene H. Jacobson, Assistant Program Director, Survey Research Center, Mr. Floyd C. Mann, Assistant Program Director, Survey Research Center, of the University of Michigan, and Dr. Frank Finch of the University of Illinois. Mr. Donald Dabelstein, Assistant Director of the Office of Vocational Rehabilitation was also a member of this original committee which was responsible for the development of the project throughout the initial period. Through the cooperation of the American Foundation for the Blind, the leadership of Dr. Nathaniel Raskin, Director of Research Planning, was contributed. The assistance provided by Dr. Milton Rokeach, Department of Psychology at Michigan State University as the consulting psychologist in the project, was of inestimable value in developing the scale and later analyzing the research material.

The directors of the various agencies for the blind operating adjustment centers, as well as the staff providing adjustment training, were most cooperative in assisting with the collection of the data on adjustment. Dr. Emily Willerman at the Minneapolis Adjustment Center and Mr. John Parish at the Alabama Adjustment Center, cooperated by assuming full responsibility for collecting the data in their respective centers.

The cooperation of the Guidance Committee of the College of Education, Michigan State University, was greatly appreciated in view of the fact that this permitted the use of the research material for the doctoral dissertation. Appreciation is expressed especially to Dr. Leonard J. Luker for his cooperation as chairman of this Committee and for the additional time contributed in attending meetings of the national research committee. Other members of the Guidance Committee included Dr. Cecil Millard, Dr. Harry Sundwall, and Dr. Raymond Hatch of the College of Education; Dr. Ernest B. Harper of the School of Social Work, and Dr. Milton Rokeach of the Department of Psychology.

Mr. Malcolm Henry of the Statistics Division of the Michigan State Department of Social Welfare was most helpful in contributing his time in assisting with the statistical problems encountered in analyzing the research material.

Few projects of this nature are endowed with the variety of disciplines or excellence of leadership encountered in the development of this project.

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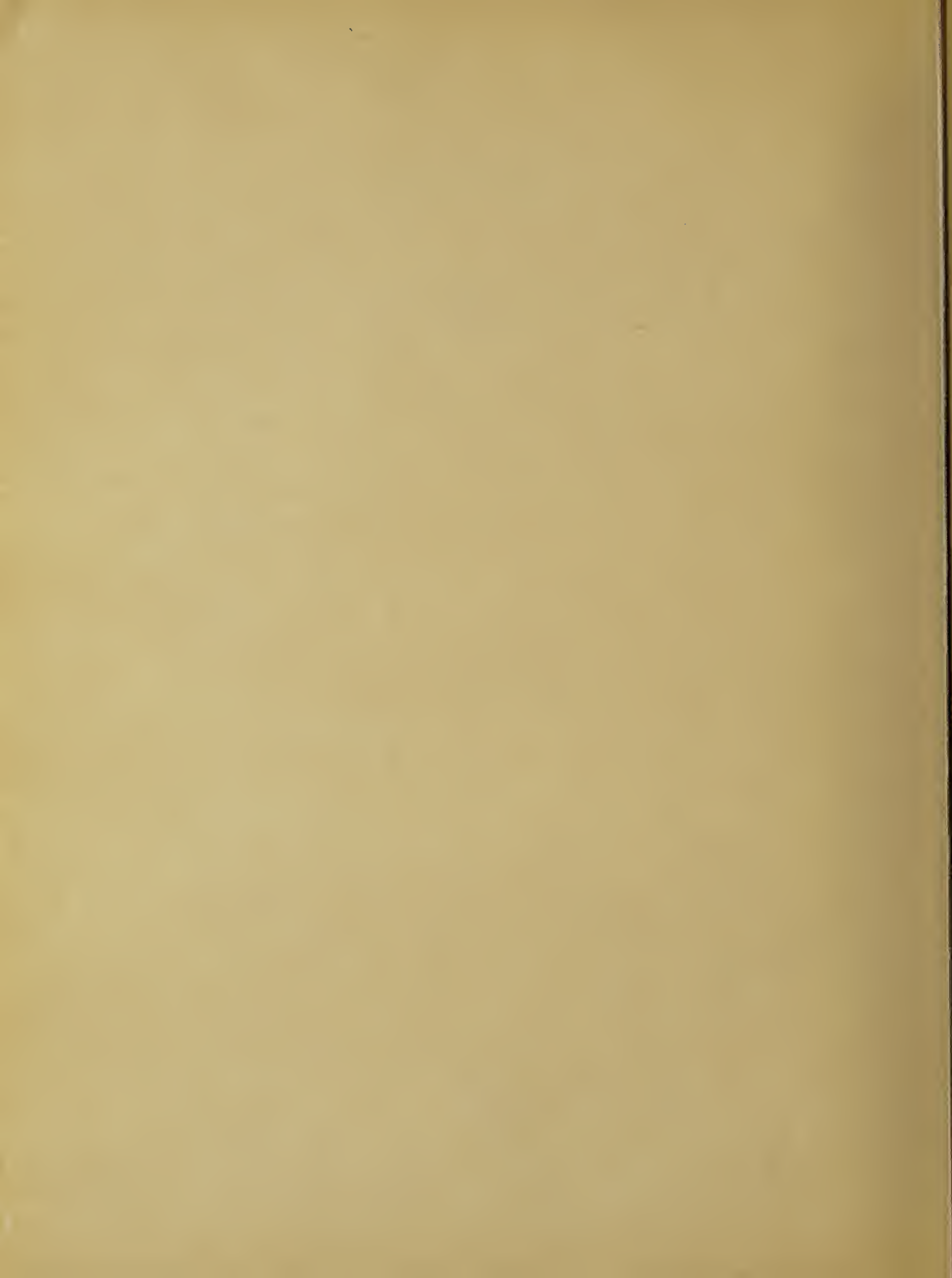
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CHAPTER I

INTRODUCTION

Historical Background of the Study

The rapid growth of adjustment centers for adult blind following World War II accentuated the need of instruments and methods which would be useful in evaluating adjustment to blindness. As much of the cost of adjustment training was borne by the Office of Vocational Rehabilitation of the Federal Security Agency through the various state rehabilitation programs, that office was especially concerned with the development of techniques and devices which would assist personnel in such centers to determine whether programs were effective in achieving the desired results. This led the Office of Vocational Rehabilitation to draw up a contract in 1950 with the Institute for Human Adjustment, University of Michigan, in which that University was assigned the responsibility of undertaking research to develop instruments which would be helpful in evaluating adjustment to blindness.

Previous to this, Dr. Wilma Donahue of the Institute for Human Adjustment had demonstrated considerable interest in the field by organizing a national conference in 1947 on psychological adjustment of adult blind[14]. Dr. Donahue had further demonstrated her interest by establishing a Division of Services for the Blind within the Institute for

Human Adjustment to provide psychological diagnostic service for the Michigan Division of Services for the Blind, State Department of Social Welfare. This project was reported by Morris[27], who was the psychologist in charge of this service at the University of Michigan for a period of time.

One of the products of the 1947 conference at the University of Michigan was the organization of a National Psychological Research Council for Blind. The Council assumed the responsibility of stimulating interest in the field of research on problems of blindness. One of the projects was concerned with the publication of a booklet listing the various subject areas in which research work was indicated[19]. The Office of Vocational Rehabilitation, in cooperation with the Council, early conceived the idea of organizing a project to develop techniques to evaluate adjustment to blindness. In an attempt to bring about a multidisciplined approach to the problem of evaluating adjustment, an effort was made to secure representatives of various schools of thought on the original committee so that different approaches could be utilized in developing evaluative instruments. Originally, it was planned to have the entire committee meet over a period of time to pool the thinking of its members and, thus, develop an instrument which would be effective in evaluating adjustment. As time passed, however, it was discovered that this approach was not effective as it appeared impossible to make plans when all committee members could devote their time exclusively to the proposed project. This led to the decision

early in 1951 to employ a full-time worker as the most advantageous way of using the resources available in developing the project. The writer was invited to assume the responsibility of working full time on the project late in the summer of 1951. In view of the fact that funds were not entirely adequate to meet the increased cost, the American Foundation for the Blind was invited to participate in the project by providing a research fellowship. The Foundation was also invited to appoint a representative to assist in planning the research program. The Foundation accepted the invitation, provided a fellowship and appointed Dr. Nathaniel Raskin, Director of Research Planning for the Foundation, to act as a member of the National Research Committee. Permission was also secured from the Graduate School of Michigan State University to utilize the research materials for a doctoral dissertation. A committee was subsequently appointed by the Graduate School of Michigan State University to include members of the College of Education, the School of Social Work, and the Department of Psychology. In an attempt to bring about a closer relationship between the National Research Committee and the Graduate School of Michigan State University, Dr. Leonard Luker, Chairman of the Guidance Committee, was invited to act as a member of the National Research Committee.

History of Adjustment Training

The first civilian rehabilitation service in the United States became available after World War I subsequent

to the passage of the National Rehabilitation Act of 1920. War casualties increased public consciousness of the need of such service, which resulted in the enactment of the law making this service possible. At about the same time the first known rehabilitation center was organized for blinded servicemen in England under the name of St. Dunstan's. A report is provided by the founder of this institution, Sir Arthur Pearson [29] in his book Victory Over Blindness. A more recent report of this famous center is made by Sir Ian Fraser [22] in which he tells of the service provided to veterans in World War II in England. This institution appears to be the original adjustment training center and probably influenced the development of similar programs in this country following World War II. During the period of conflict, both the army and navy established rehabilitation centers for blinded servicemen. Reports of these programs were provided by Frampton [21] and Blackburn[7]. Frampton reported on the rehabilitation services provided by the navy while Blackburn reported on the service provided by the army at the Old Farms Convalescent Hospital in Avon, Connecticut. The latter center apparently was the model for adjustment training centers for civilian blind which developed rapidly throughout the country following the end of World War II. The first of these centers was organized in North Carolina in 1945 and has been in continuous existence since that time. This initiated a movement which spread rapidly throughout the country. In 1949 the American Foundation for the Blind made a study of sixteen of

these centers and provided a report in July of 1950 [1]. This presented a composite picture of the training offered in adjustment centers at that particular time.

The following year the Office of Vocational Rehabilitation, Federal Security Agency, made a study of nine selected adjustment centers in preparation for a conference of personnel concerned with such training. This included a description of the nine adjustment centers [18] participating, as well as a collection of case histories of eleven successful and unsuccessful cases [17] as compiled by various centers providing adjustment training.

A workshop of adjustment training center personnel was held in Mitchell, Indiana, in 1951 which was referred to as the Spring Mill Conference. The purpose of the workshop was recorded as being: "To bring about and set forth in a single document the best experience and thinking of personnel actively engaged to provide services to the blind through adjustment centers." [2]

Considerable interest developed about this time among professional personnel engaged in providing services to the disabled in the so-called rehabilitation centers. A number of articles were published in regard to such centers and on adjustment to blindness. The Office of Vocational Rehabilitation, Federal Security Agency, published a pamphlet in 1949 entitled "Adjustment and Pre-Vocational Training of the Blind." [16] Articles also appeared in the Outlook for the Blind describing the programs in a number of rehabilitation

centers. These included an article by Stalnaker [39] on the West Virginia program, another by Redkey [35] on the Washington Rehabilitation Center, and Dunham [15] describing the Kansas program. An article by Thornton [40] also in the Outlook gave a comprehensive report on the approach of training which was identified as orientation and pre-vocational work and try-out experience for blind as provided through one of the Goodwill Industries. The proceedings of the Spring Mill Conference were published by the American Foundation for the Blind in 1951 in a pamphlet entitled "Adjustment Centers for the Blind." [2]

An analysis of the curricula of existing training centers [1] indicated considerable diversity in program content. Upon examining the goals of such training however, it was noted that they were very similar. Generally, the purposes of such training were threefold in nature.

The first of these was designed to permit blind persons to achieve skills to allow them to live with an optimum degree of independence. The emphasis in this training was in travel competence. The development of the so-called Hoover [24] technique of cane travel during World War II was largely responsible for this emphasis. The introduction of this technique resulted in considerable controversy. A review of the literature on adjustment training indicated that centers were generally conforming to the method suggested by Hoover. It was also found that centers had developed considerable competence in determining the level of trainees' ability in this

area. In the report of the Spring Mill Conference [2] a detailed checklist was published which could be used by center personnel in determining clients' capabilities in the proper use of the cane. Somewhat later an instruction manual was published by the Industrial Home for the Blind [25] in Brooklyn, New York, which further systematized instruction in travel. Other training in functional skills offered at centers included instructions designed to increase skill and independence in such areas as eating, care of clothing, and personal hygiene problems. In these areas, centers had developed a variety of checklists, rating devices, and similar techniques to evaluate individual clients' level of adjustment. The unpublished material [18] compiled by the Office of Vocational Rehabilitation permitted a study of the methods of evaluation which were being practiced at the different centers at the time of this study. This permitted the decision that, at the time of this review, there were adequate methods of evaluation in this particular sphere.

The second area in which training was being provided was in social competence. The purpose appeared to be that of giving the individual experience in group living with the hope that this would permit acquisition of skills which would allow him to get along better with all individuals with whom he came in contact. Methods for achieving this goal were somewhat more diversified than found in the area of functional skills. Also, it may be found that methods for evaluating progress in social adjustment were not as adequate as those

encountered in the area of functional skill. Nevertheless, most centers had developed techniques which permitted evaluation of the individual's social adjustment. Undoubtedly it would be helpful to develop more objective techniques in the evaluation of social adjustment.

The third area of adjustment training was the one which appeared to present the greatest problem in evaluating level of adjustment. This may possibly be due to the fact that psychological adjustment cannot be as readily observed as functional skills and social competence. Professional personnel in the field of work for the blind will readily agree that it is important for the individual to develop acceptable attitudes toward problems which he encounters as the result of blindness if he is to achieve an over-all desirable level of adjustment. Efforts to bring about a modification of attitudes were approached in different centers through individual counseling, as well as through various forms of group and individual therapy programs. The methods of approach in this particular area were more varied than any other effort made by adjustment centers. Furthermore, a review of the evaluation techniques indicated that little had been done to develop a method of objectively evaluating clients' attitudes toward problems of blindness. It was decided, therefore, that a worthwhile contribution could be made by developing techniques which would permit objective evaluations of attitudes of blind people toward problems frequently encountered as the result of their disability. With this in mind, an

attempt was to be made to determine what particular problems of adjustment were frequently encountered and to develop techniques which would permit objective evaluation.

Review of Literature on Adjustment to Blindness

A review of literature in the field of work for the blind indicated that writings were predominantly either historical or autobiographical in nature. Although the latter dealt with the problem of adjustment, generally they were highly subjective. One of the first books to digress from this pattern was that by Cutsforth [13] entitled The Blind in School and Society. When this was published in 1932, it was the subject of much controversy because of the caustic attack upon the established methods of education in schools for the blind throughout this country. The work was pertinent to the present study in that an attempt was made by Cutsforth to analyze the problems encountered by blind individuals in making an adjustment to a society of sighted people. A book by Chevigny and Braverman [12], The Adjustment of the Blind, was the first to include an evaluation of adjustment centers. Sections of this book emphasized problems which were psychological in nature and drew heavily upon Freudian concepts. The term "adjustment centers" was criticized, and a suggestion was made that these be identified as "re-training centers." Although somewhat critical of these centers, the authors pointed out that in North Carolina, where the first adjustment center was established, this state produced an

outstanding record of job placement following the establishment of such a center. In the writer's opinion, this is one of the best books written to date on adjustment to blindness.

Among research literature, one of the earliest attempts to evaluate adjustment of blind individuals was made by Muhl [28], who investigated adjustment of blind children by use of questionnaires, interview techniques and psychometric material at the California State School for Blind. It was reported in this study that children showed a marked suggestability, lack of initiative, had elaborate fantasy life, had a feeling of inferiority, sometimes accompanied by bravado, tendency to discouragement, undue sensitiveness, and, in some cases, resentment to the handicap.

Another study in which an attempt was made to evaluate adjustment to blindness by scientific methodology was that by Brown [9, 10, 11]. In this, the "Neyman-Kohlstedt Test of Introversion-Extroversion" and the "Clark Revision of the Thurston Personality Schedule" were used in evaluating adjustment of a group of blind adolescents. Responses were compared with a matched group of sighted adolescents. One of the conclusions drawn in this study was that blind girls appeared to be somewhat more neurotic than blind boys; however, the use of these tests did not appear to be entirely satisfactory.

Sommers [37] in her study of blind adolescents, attempted to determine the relationship of the child's behavior pattern to parents' attitudes and actions. Adjustment

of the parent to the blind child was reported to occur under five patterns; acceptance, denial, overprotection, disguised rejection, and overt rejection. In considering the effect of these attitudes upon the blind child, it was concluded that such individuals tended to make a wholesome personal and social adjustment whenever the early life afforded them a reasonable amount of economic, physical and emotional security and whenever they were fully accepted by members of their family and parents and when the parents were able to face these handicaps in an objective way. The general conclusion is that negative reactions to blindness by parents was a major source of maladjustment in the child.

The most recent research encountered in the area of adjustment to blindness was that by Bauman [4, 5] who did a comparative study of personality factors in blind, other handicapped, and non-handicapped individuals. Her work included the design of an instrument to evaluate adjustment which was entitled "The Emotional Factors Inventory." This included eight categories:

1. Sensitivity
2. Somatic symptoms
3. Social competency
4. Paranoid tendencies
5. Feelings of inadequacy
6. Depression
7. Attitudes toward blindness
8. Validity items.

This study provided the following conclusions:

1. Both blind and other rehabilitation groups tend to obtain less favorable scores.
2. The most significant difference between blind and rehabilitation groups and control groups are items of sensitivity and anxiety.
3. The blind as a group tend to feel that exceptions should be made for them and that they should not have to meet the same standards which apply to others.
4. In social contacts the rehabilitation group appears to be less well-adjusted than the blind. Both give evidence of withdrawal from social activity.
5. Despair and hopelessness often assigned to the blind seemed to be more characteristic of the rehabilitation group and, to some extent, was found in the non-handicapped group.

An outstanding contribution in the field of adjustment to blindness has been made since the present project was first initiated. A report prepared by Mary K. Bauman [6] of a study as reported by a committee to study adjustment to blindness was published under the title, Adjustment to Blindness, early in 1955. This study was made in cooperation with professional personnel engaged in the field of work with the blind from six states, including Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina, and West Virginia, as well as personnel from the Office of Vocational Rehabilitation and three private agencies, the American

Foundation for the Blind, the Maryland Workshop for the Blind, and the Seeing Eye, Incorporated. Four hundred forty-three blind subjects were selected from a total population of 53,773 and divided into three specific groups. Two of the groups were in contrast to each other, the one absolutely essential difference between the two groups being that Group A was composed of individuals who had been in gainful employment adequate for self-support at least a year before their inclusion in the study while Group C was composed of individuals who had not been gainfully employed for at least ten years since the onset of blindness. The study of adjustment to blindness did not consider merely employment. The committee, therefore, defined Group A as well-adjusted, as having achieved independence in travel, giving evidence of satisfactory home life, satisfactory recreation and community contacts, and observed to have satisfactory grooming and hygiene. In contrast, Group C, the poorly-adjusted group, was chosen from clients demonstrating essentially the opposite of these characteristics. The third group, Group B, were not successfully employed but otherwise were classified as being generally well adjusted. Each person included in this study was given a measure of general mental ability, a measure of manipulative skill, a measure of personality and a measure of interest. Further, an interview was held with each person to collect information. The interviews were carried on by trained interviewers and covered one hundred twenty-six areas of study. In the summary and conclusions

in this study, Bauman reported that Group A, the self-supporting and generally well-adjusted individuals were significantly superior to the poorly-adjusted individuals in Group C in intelligence quotient, manipulative ability, and personality inventory scores. There was no significant difference between Groups A and C in interest inventories. One of the most important areas of difference was reported to be in the family relationship area, where, in Group A, the families appeared to be more acceptant of the disability with mutual respect and sharing of problems. Education, further, appeared to provide a significant difference between the two groups with Group A staying in school longer, being better trained, with more academic success, which, in turn, appeared to contribute materially to the economic and social adjustment of the members of this group. Difference in I. Q. and attitude toward blindness strongly favored members of Group A. Independence of travel was also more characteristic of Group A than Group C. This reflects a greater attitude of dependence in Group C. Here again the family relationship appeared to enter, in that Group A reported that families favored their traveling alone while the C group reported more frequently an overprotective family attitude. In the concluding paragraph of the report, Bauman states;

Indeed, if it were necessary to summarize all findings of this study into a single thought, that thought would be that no quality of vision, health, education or family and social interaction has so much to do with adjustment as have the qualities measured by intelligence quotient and personality inventory scores. Each of the preceding may at

times influence I.Q., especially personality scores, but, regardless of what shaped it, that aspect of the client which is measured by these tests, in the end, must consistently show relationship to adjustment, even when the most fundamental measure of adjustment is economic.

Even though in this study the original division of groups was on the basis of economic achievement, it is important to note that the "heart of adjustment" is not in such facts but, rather, in feelings. The study as reported by Bauman apparently recognized, therefore, that attitudes are essentially one of the most important influences in considering adjustment to blindness regardless of what definition was initially placed upon the term "adjustment."

The work by Potter [31] was considered one of the best of the unpublished research projects on problems relating to adjustment to blindness. Although this dealt with the blind child, it indicated the relationship of the individual to society. One section of the report dealt with orientation. The term here, however, implied a broader concept than usually provided. In addition to skill in travel, the term also implied acquisition of skills in daily living, such as eating, personal care, and clothing care. Physical orientation and social graces were also included in this term. Apparently the skills now taught in adjustment centers were, in this study, considered as orientation training. One section dealt with the most commonly encountered attitudes of the blind and suggested methods of dealing with these attitudes as a means of promoting better adjustment.

A thesis written by Proctor [33] entitled "Factors Contributing to Adjustment to Blindness as Determined by Eighteen Case Studies in Which Adjustment was Seen," provided an evaluation by a home teacher using social work concepts as a means of assisting individuals to make better adjustment. Analysis of these cases indicated that the most commonly encountered problems in working with blind individuals were overprotection, regression, inactivity, inability to get about, restriction in social opportunity, and loneliness.

The title of a thesis written by Reeder [34] "An Analysis of the Process of Adjustment and the Nature of Experience Subsequent upon Loss of Vision" gave the impression of objective evaluation of the processes of adjustment to blindness. However, it actually was a self-analysis of an individual's thinking, emotions, and reactions to the disability of blindness. It was concluded with an analysis of how the individual achieves self-rehabilitation by the following procedures:

1. Developing an attitude of acceptance
2. Developing compensatory techniques
3. Acquiring mobility skills
4. Overcoming mannerisms
5. Securing education to achieve self-rehabilitation

The unpublished work by Smith [38] entitled "Adjustment of the Blind to Industrial Employment," provided an analysis of a group of eighteen blind workmen in a manufacturing plant in St. Louis, Missouri, and how they adapted

themselves to competitive employment. The following conclusions were provided:

1. Blind people have been able to adapt themselves to industrial employment.
2. They demonstrated a greater degree of versatility than is commonly supposed.
3. Their production standards were superior to sighted co-workers.
4. The most serious problem was that of getting around in the plant.
5. In the group studied, the training background was not commensurate with present employment.
6. Although blind employees had demonstrated ability, reliability, and versatility, their future in post-war production was uncertain.

Among the material appearing in periodicals on adjustment to blindness was an article by Potts [32] entitled "Adjustment of the Visually Handicapped," which provided an analysis of the problem of adjustment to visual loss. Although published in 1944, prior to the present adjustment training center movement, it suggested that adjustment was the process of (1) orientation to surroundings; (2) psychological adjustment; and (3) social adjustment, which are the three areas of emphasis of training in the present adjustment centers. In the area referred to by Potts as psychological adjustment, which was the specific concern of the present project, he emphasized the importance of desirable attitudes of the individual toward his disability.

The article by Whittkower and Davenport [41], "The War Blinded--Their Emotional, Social, and Occupational Situation," provided an evaluation from a psychiatric viewpoint of the reaction of blinded servicemen in Great Britain. This included an analysis of one hundred and three cases processed through a particular hospital setting. One section included an analysis of the types of emotional reactions encountered in the group studied. This was reported as follows:

1. Depression, 29%
2. Resentment, 11%
3. Defiance, 24%
4. Cheerful, 13% (self-deceiving optimism and jocularly)
5. Resignation and indifference, 8%
6. Grossly abnormal reactions, 15% (conversion hysteria and schizoid states)

An article by Miller [26] entitled "Psychiatric Aspects of Rehabilitation," included a section which analyzed problems of rehabilitation of the blind. He advocated the use of visually-handicapped personnel whenever possible as workers with this group of disabled. He also indicated that research was greatly needed to investigate the difficulties of orientation. The area of investigation which he suggested included the following:

1. Problems of Braille reading.
2. Speed of acquiring skill of sense of obstacle.

3. Acquisition of profitable skill to permit the individual to win back self-respect through economic usefulness.
4. Methods of educating the family of blinded victims.
5. Determining extent of special treatment needed.
6. To determine if knowledge of reaction types is helpful in adjustment or if it would be profitable to study individual cases of personality variations.

Considerable material was found which dealt with adjustment to physical handicaps in general. Some of these writings provided special sections on adjustment to blindness. Among the better known was the book by Pintner, Eisenson, and Stanton entitled The Psychology of the Physically Handicapped [30]. The report by Barker, Wright, Meyerson and Gonick [3], Adjustment to Physical Handicap and Illness: A Survey of the Social Psychology of Physique and Disability, was, without doubt, the most comprehensive study in the field of adjustment to physical disability. The emphasis of this study was on the concept of somatopsychology. This may be interpreted as the influence of normal and pathological variations in physique upon behavior and was concerned with the psychological and social implications of such variations. The revised edition of 1953 contained a section on the somatopsychological significance of impaired vision. This provided the most comprehensive survey which has ever been attempted of various efforts of scientific investigation in this specialized field. The following conclusions were

provided in summarizing the investigation made by this group.

1. The incidence of the visually disabled appears to be increasing in the United States.

2. Attitudes toward blindness as a condition are uniformly negative.

3. Public attitudes toward blind persons are not unfavorable, but overt attitudes are often perceived by blind as hostile and derogatory.

4. Parents of blind children and persons who work with the blind not infrequently exhibit contradictory behavior resulting from a conflict in attitudes.

5. On personality inventories the blind, more frequently than the seeing, earn scores that fall within the "maladjusted" range. The possibility that this is an artifact of the standardization procedure has not been eliminated.

6. The evidence is clear that the social maturity of the blind child is retarded when measured on a scale designed for seeing children.

7. Mild visual impairments, except perhaps the traumatic loss of one eye, is probably not crucial for behavior.

8. Severe visual disability is not associated with severe personality disturbance in the overwhelming proportion of persons studied. Personality characteristics existing before incurring a visual disability appear to be important.

9. The presence of substantial individual difference among the visually handicapped has been confirmed. It has been

demonstrated that many personal adjustment patterns are possible for different individuals who have the same degree of defective vision.

10. Much of the evidence from research must be interpreted cautiously, and some of it must be rejected because of serious methodological inadequacies. These inadequacies are not inherent in research on problems of visual impairment, although many of them are not easy to remedy.

This review of the efforts at scientific investigation in the field of adjustment to blindness, should not be considered as an unabridged study of all investigations in the field. This summary more specifically relates to the specialized areas considered in this particular study. Certain conclusions can be drawn as a result of the review of these studies: (a) It may be concluded that many of the efforts at scientific investigation of the field of work with the blind were methodologically inadequate; (b) the efforts made by different investigators have been sporadic, frequently with little or no relationship between the various efforts; (c) it may be further noted that frequently studies which appeared scientifically sound arrived at diverse conclusions. An analysis of those studies which may be considered methodologically acceptable indicates that there were a group of constants which evolved from the different studies. These constants, therefore, may be considered as the core of further study of adjustment to blindness. These were summarized in the following three areas:

1. Adjustment of the individual to his physical environment. This was referred to in various ways but concerns itself primarily with the blind individual and the physical problems of orientation in the immediate surroundings. The very fact of blindness requires the individual to make certain adaptations in his physical behavior different from the sighted individual if he is to function as an independent being.

2. Adjustment of the individual to his social environment. Blindness presents certain problems in social interaction which requires modification of behavior of the blind individual different from one not so disabled. The most frequently considered relationship was with the immediate family. However, the adjustment of the blind individual to society as a whole was considered of paramount importance.

3. Psychological adjustment of the individual. The third area was concerned with those feelings and emotions of the blind individual which specifically relate to the disability. These may be reflected in the development of certain attitudes towards problems which are encountered as the result of the physical disability. Although expressed through attitudes, this area appeared to be more specifically concerned with the individual's "inner" adjustment, his thoughts, feelings, frustrations, anxieties, which have a relationship to the disability.

The analysis of the different studies reported here indicates that the majority of the conclusions in these

studies may be included in these three broad categories. A study, therefore, which has as its purpose that of evaluating adjustment to blindness must give some consideration to the three areas which may be characterized as the most frequently encountered problems of adjustment to the disability of blindness.

Statement of the Research Problem

The information in the introductory section on the background of the study provides a developmental approach to the purpose of this project. There appeared to be a growing movement in the field of work with the blind to provide certain services which had as their purpose helping the blind individual to make a better adjustment to his disability. Such services were being provided largely in the so-called adjustment training centers. The purpose of such centers was that of providing various educational and therapeutic opportunities with the goal of altering behavior patterns. The clientele sent to such centers was made up largely of individuals who had never made an adequate adjustment to their disability. Some of these people had become blind relatively recently, while others had been blind over an extended period of time. Regardless of the period for which they had been blind, all could be considered maladjusted to various degrees and in various areas.

As the adjustment training movement expanded, it became increasingly more important to develop techniques which

would be effective in evaluating adjustment level to determine to what extent the individual behavior pattern changed as the result of adjustment training. Initially, the research problem was concerned with the task of designing methodologically sound techniques which would be effective in evaluating the results achieved with blind individuals in adjustment training centers. Periodicals in the field of personality evaluation, as well as the more popular type publications, were reporting success with increasing frequency with instruments designed to evaluate personality. Therefore, it was decided that with the application of accepted techniques, it would also be possible to develop a scientifically sound instrument which would make it possible to secure an objective evaluation of personality factors in relation to adjustment to blindness.

It readily became obvious as the project developed that the scope had to be broadened beyond the mere task of designing an evaluation instrument. The complexity of personality made it apparent that it would be necessary to consider other factors in the individual's experience which might have a relationship to his adjustment level. The evaluation instrument then would become a vehicle which would be useful in contributing to the total information about a person in evaluating adjustment level.

If adjustments were successfully evaluated, it appeared necessary to define this word, as adjustment could mean different things to different people. Review of the

literature on psychological problems of blindness isolated certain problem areas which contributed to the concept of adjustment. Interviews with blind individuals undergoing adjustment training further contributed to the development of a concept of adjustment. A study of what problems were encountered by training personnel in such centers was also a contributing factor. These approaches emphasized the need of considering adjustment from a psychological rather than a physiological standpoint although recognition was given to the fact that the acquisition of physical skills would be influential in reducing feelings of frustration and thus effect "inner" adjustment. The emphasis in this study however was primarily on the individual's feelings about problems encountered as the result of blindness. The attitudes he demonstrated were considered as the outer manifestation of inner feelings.

With the development of the total personality concept, it became apparent that it would be necessary to have at least basic sociological facts on individuals under study as environmental circumstances would undoubtedly be influential in the development of certain attitudes. If it could be established that certain experiences, circumstances or conditions were positively related to the individual's level of adjustment, then environmental control could be used advantageously in the attempt to alter behavior patterns.

As the project developed, it also became apparent that if the effort to analyze factors relating to blindness

was to be thorough that it would be desirable to include a longitudinal sampling of the population under study to determine if the services provided in adjustment training centers had a lasting effect in altering attitudes toward problems of blindness. Such a study would also be helpful to permit further study of the instrument itself as it would provide additional validity study.

As the goals of the project developed, the hypothesis emerged that controlled educational experiences and environmental circumstances which were specifically designed to meet the problems of maladjusted blind individuals could be effective in altering the attitudes and behavior patterns of such persons. Brookover [8] in his study of maladjusted servicemen presented a comparable hypothesis.

The basic concept in such a theory should be the generally accepted social-psychological hypothesis that human personality develops in the experience of an individual as the biological organism interacts with human beings within the social-cultural environment. . . . The accepted behavior of the maladjusted person is (also) the result of the individual's experience in the same interactive process. If this concept is valid, it should follow that human behavior of maladjusted persons can be modified by modification of experience through the control of their social-cultural environment.

He further states that there are three basic steps to be considered in implementing such modification:

1. The construction of a group situation in which the maladjusted person is presented roles of behavior patterns which are both acceptable to the group and satisfying to him:
2. This group situation must be constructed in such a way that it presents a minimum and decreasing

opportunity for the maladjusted person to interact in terms of unaccepted roles and attitudes:

3. The individual must be observed to determine if he participates in the group in such a way for a long enough period to internalize and make habitual the accepted roles and attitudes.[8]

The basic steps here presented were essentially the basis for adjustment training in the centers under study.

It was reported by Brookover that investigation of literature in this field did not reveal any scientific study to verify his hypothesis. This study of blind individuals in adjustment training centers proposed to provide substantiating data to prove this hypothesis.

In conclusion the approach to verification of this hypothesis included four procedures:

1. The development of an instrument to evaluate adjustment to blindness.

2. The application of the instrument to obtain a representative sample of data from maladjusted blind persons.

3. The compilation of basic sociological data of the sample population.

4. A longitudinal study to determine the effectiveness of the training in permanently altering the individual's behavior pattern.

CHAPTER II

DEVELOPING A TECHNIQUE TO MEASURE ADJUSTMENT

Points of Departure

Having delimited the present investigation the initial step in analyzing adjustment appeared to be concerned with the problem of formulating specific items to be employed in evaluating level of adjustment. Several approaches were available in this task. Four sources were used in this phase of the study.

The first approach was through the review of literature, as reported in the previous section. This permitted the itemization of the most frequently encountered problems of blindness as observed by a variety of different specialists. If comparable problems were reported by different experts in the field, then it might be presumed that these should be investigated.

The second approach was to go directly to a group of blind individuals in training and secure their responses to a number of simple questions relating to adjustment to blindness. The subjects interviewed in this phase of the study were a group of trainees at the Michigan Employment Institution for the Blind. Their responses to prepared questions were recorded verbatim. The questions required the blind trainees to state their opinions about the training situation,

what they thought about sighted people with whom they came in contact, what their feelings were about the disability of blindness, and their attitude toward problems relating to employment. The material collected in this manner later provided an excellent source for construction of adjustment scale items.

A third method of determining common problem areas was through contact with the professional staff of the Michigan Division of Services for the Blind. The project was discussed with them and a request made that they cooperate by selecting problem cases with which they were currently concerned in providing rehabilitation services. They were asked to review these cases and list in summary form the problems that they observed in each case which appeared to be related to the individual's rehabilitation.

Finally, the fourth point of departure was in the investigator's own occupational experience, which included teaching at a school for blind, as well as working with adult blind in a rehabilitation program over a period of a number of years. Many of the adult blind in the present rehabilitation case load were previously known in the school situation a decade earlier; thus, providing an excellent opportunity to observe problems of adjustment encountered by blind individuals over an extended period of time.

In constructing the adjustment scale, these sources of information were most frequently utilized. Those problems

which appeared in repeated instances were considered to be important enough to merit investigation.

Identifying Areas of Adjustment

On the basis of considerations discussed in the preceding section, the following areas of adjustment were judged to be frequently encountered among the blind. In the final instrument designed to evaluate adjustment, these were identified as separate sub-scales. Identification of the areas and descriptions are as follows:

1. Morale ("M" Sub-Scale). This was the most general area which dealt with the individual's confidence in himself to cope with problems with which he might be confronted, the extent to which he possessed hope, aspiration, and confidence in his ability to cope with problems as they arose in the future. In reviewing literature on adjustment, the work by Rundquist and Sletto [36] was encountered, who also investigated morale. A few of the items in their adjustment scale were employed in the present study as they appeared to sample comparable problem areas with which this study was concerned.

2. Outlook toward Sighted People ("S" Sub-Scale). While the first section dealt largely with the individual's concept of self, this particular section dealt with his concept of others. An attempt was made here to evaluate the extent to which he possessed a wholesome outlook toward his relationship with sighted people, neither rejecting the fact that certain assistance was required nor becoming dependent

upon sighted people to do things for him which he was capable of doing for himself.

3. Outlook on Blindness ("B" Sub-Scale). Although the entire scale dealt with attitudes of blind individuals, this section was focused more directly on the individual and his concept of himself as a blind person. An attempt was made here to evaluate the extent to which the client accepted his disability in a realistic manner, neither rejecting it as inconsequential nor succumbing to it as being totally incapacitating.

4. Family Relationships ("F" Sub-Scale). This dealt with the attitudes toward members of the family in the home situation. Although this again appeared to evaluate relationship of blind individuals to sighted people, it focused more directly on problems encountered by him as a member in a primary group. An attempt was made here to evaluate the extent to which the individual was able to cope with attitudes of rejection, to resist domination and to assert himself as an equal in the group.

5. Attitude toward Training ("T" Sub-Scale). The degree of success which might be anticipated in adjustment training would be directly related to the attitude the individual had toward the training situation. An attempt was made here to evaluate the degree to which the individual had a wholesome attitude toward training and the cooperation demonstrated in this situation. Some items relating to outlook toward education in general were included in this group. As

the Rundquist and Sletto [36] study included a section on training, this source was used to a limited degree in writing items for this section.

6. Occupational Outlook ("O" Sub-Scale). The last part dealt with the individual's outlook toward employment. Here an attempt was made not only to evaluate the individual's concept of himself as an employee but also to determine what he expected in an employment situation in general. If the individual felt that certain concessions should be made to him because of his disability and that he should not be expected to meet the same standards as others, then it would be unlikely that he would make a successful adjustment in a situation in which he would be expected to compete with non-handicapped individuals. An evaluation of these attitudes would be especially important in making a prognosis on occupational adjustment.

Evaluation Criteria For Scale Construction

Using the sources previously outlined, items purporting to measure adjustment were written on each of the six categories just defined. In constructing items for the adjustment scale, the following criteria were employed:

1. The statement should be in the blind person's own language.
2. The item should be specific in its content.
3. The intent of the item should not be readily obvious.

4. The statement should touch on a recognized problem area.
5. Agreement or disagreement should delineate between good and poor adjustment.

Following this procedure, a number of items were written in the form of simple, direct statements. After considerable study, fifteen of the best items available were selected in each of the six areas. This resulted in the preliminary ninety-item adjustment scale which appears as Table I on the following page.

The Validating Instrument

Any experimental design in a project of this nature must include techniques to be used in validation. This necessitated the employment of an external criterion. One of the most common methods employed is to use similar instruments as an independent criterion against which the experimental instrument can be validated. At the time this study was being developed no comparable instrument had been designed to evaluate adjustment to blindness. Toward the conclusion of the project an instrument by Bauman [4] entitled "Emotional Factors Inventory" was published. It sampled many of the same areas which are under consideration in this project. In fact, the only area that did not appear to be sampled was that concerned with attitude toward training.

Even though the employment of other instruments as an external criterion for validation is a common one, it is

TABLE I--Part 1
90-ITEM PRELIMINARY SCALE

Item No.	"M" (Morale) Sub-Scale
1	A blind person has so many more problems than a sighted person that he is liable to get discouraged. D
7	In spite of the complexities of everyday life, times are much better now than they were a hundred years ago. A
13	It does not take long to get over feeling gloomy. A
19*	It's difficult for a person to think clearly these days. D
25	A person can plan his future so that everything will come out all right in the long run. A
31*	Life is just one worry after another in these times. D
37*	No one cares much what happens to you. D
43	Real friends are easy to find, even though you are down and out. A
49*	Life is just a series of disappointments. D
55*	In times like these, one is inclined to give up hope of getting ahead. D
61	No one cares much what happens to you when you are blind. D
67	In these times there are plenty of reasons to be worried about the future. D
73*	Most people are usually happiest during their childhood. D
79	Even though a person feels pretty low, he should be cheerful and optimistic at all times. D
85*	It is great to be living in these exciting times. A

D--Disagreement indicates adjustment

A--Agreement indicates adjustment

*--Retained in final 42-item scale

TABLE I--Part2
90-ITEM PRELIMINARY SCALE

Item No.	"S" (Sighted) Sub-Scale
2	A blind person has to depend on sighted people for a number of things. A
8*	A blind person would be better off if he chooses mainly sighted friends. D
14*	There are altogether too many sighted people working in agencies serving the blind who do not know the problems of blind people. D
20*	Because they know each others' problems better, the blind can put their trust in other disabled people more than those not disabled. D
26	A blind person has to be especially careful or others are liable to take advantage of him. D
32	Very often sighted people act as though a blind person isn't all there. D
38*	It may be dangerous for a blind person to do something alone, but it is better than asking for help. D
44*	Most people who work with the blind are really interested in helping them. A
50	A good way for blind people to promote their cause is to band together and present a united front. D
56	One trouble with sighted people is that they are uncomfortable with you because you are blind. A
62	The best way to get along with sighted people is to more or less try to do what they expect. D
68	A blind person would be better off if he could find someone who could tell him how to solve his personal problems. D
74*	Most sighted people just pretend they like you. D
80	Sighted people who are paid to serve the blind all too frequently neglect their duties. D
86*	Sighted people expect the blind to do things that are impossible. D

D--Disagreement indicates adjustment

A--Agreement indicates adjustment

*--Retained in final 42-item scale

TABLE I--Part 3

90-ITEM PRELIMINARY SCALE

Item No.	"B" (Blindness) Sub-Scale
3	You can get along best if you don't think of yourself as a blind person. D
9*	A person might as well accept the fact that blindness makes people pretty helpless. D
15	There is really nothing too wrong with a blind person begging. D
21*	Many people become blind as a kind of punishment for something they did. D
27*	When you are blind, you are constantly worried about what may happen to you. D
33	It is only natural for a blind person to feel insecure. A
39	Only the blind can understand what it is like to be blind. D
45	There is really no point in living if you can't see. D
51*	It is only natural for blind people to do an awful lot of daydreaming. D
57*	With the progress being made by medical science, there is little doubt that most blindness will be curable in the near future. D
63*	There are things worse than being blind. A
69*	A blind person shouldn't have to meet the same standards as others. D
75	Blindness is more society's problem than the individual's problem. D
81	A blind person is better off by not having too many blind friends. D
87	A blind person should expect help, even though he can't make up his own mind. D

D--Disagreement indicates adjustment

A--Agreement indicates adjustment

*--Retained in final 42-item scale

TABLE I--Part 4

90-ITEM PRELIMINARY SCALE

Item No.	"F" (Family) Sub-Scale
4*	One trouble with many families is that they expect too much from a blind person. D
10	A lot of blind people would be better off if their families didn't do so much for them. A
16	A blind person's family will usually stick by him, even though he cannot find work. A
22*	A blind person cannot find as much understanding at home as he can find somewhere else. D
28	Most blind persons are better off discussing important things with members of their families. A
34	Home is the pleasantest place in the world for a blind person. A
40	Family ties are strengthened when one of the members become seriously disabled. A
46*	There are too many members of a blind person's family who are just too curious about one's personal affairs. D
52*	It is pretty hard for a blind person to keep a pleasant disposition at home. D
58*	One trouble that many blind people have is that they can't trust their families. D
64	A blind person can hardly be blamed for being nervous at home. D
70	The trouble with a blind person's family is that they try to dominate you too much. D
76*	It's all too true that a blind person's relatives don't like others to know that there is a blind person in the family. D
82	It is a lucky thing that a blind person's family can be trusted to treat him well. A
88*	Most people in the family act as though the blind person is a burden to them. D

D--Disagreement indicates adjustment

A--Agreement indicates adjustment

*--Retained in final 42-item scale

TABLE I--Part 5

90-ITEM PRELIMINARY SCALE

Item No.	"T" (Training) Sub-Scale
5*	Blind people are not getting good jobs because they are not getting good training. D
11	If friends help you to go wherever you wish, there is no need to learn to travel alone. D
17	Most of our young blind people are getting more education than they need. D
23*	A good education is a great comfort to a blind person who is out of work. A
29	Education is more valuable to a blind person than most people think. A
35	It is the well-trained man who advances more rapidly in business and industry. A
41	Our schools for the blind are doing an important job because they encourage blind people to think for themselves. A
47*	The more education a blind person has, the better he is able to enjoy life. A
53*	With proper training a blind person can do just about anything a sighted person can do. D
59	It will be nice to get back home when your training is finished so that you can just rest and do as you please. D
65*	Most of the training offered to the blind is useless in really helping them with their problems. D
71*	A lot of job training offered blind people is just a way of getting them to work for nothing. D
77*	A training center gives a blind person a chance to learn to be independent. A
83	When blind people are happy living the way they are, there is hardly any need to send them away for training. D
89	Most training for the blind is probably a waste of time. D.

D--Disagreement indicates adjustment

A--Agreement indicates adjustment

*--Retained in final 42-item scale



TABLE I--Part 6

90-ITEM PRELIMINARY SCALE

Item No.	"O" (Occupational) Sub-Scale
6*	A blind person has to accept the fact that there are many jobs he simply cannot do. A
12	Employers should keep their blind employees in lay-off periods because of the special difficulty they have in getting jobs. D
18*	A blind person who has ability and is willing to work hard has a good chance of being successful. A
24*	In deciding production rates, employers should make considerable allowance for a person's handicap. D
30	One of the biggest troubles with unions is that they are not enough concerned with the problems of handicapped employees. D
36	Many more blind people could be working if job-placement men were more conscientious. D
42	The way modern production is set up, a blind person could do well on any kind of a job. D
48	If you are blind, there isn't much use trying to get a job yourself because they won't give you a chance anyway. D
54	You just can't expect a blind person to do a job the same way a sighted person would. D
60	Statistics show that blind people have a much lower accident rate than others. D
66*	Even though you aren't highly skilled, you can do just as well if you really want to. D
72*	Employers have a way of expecting a blind person to do things that aren't required of others. D
78*	It's more important for a blind person to have pull than to have real ability. D
84	It takes more time to teach a blind person to do a job than a sighted person. A
90*	Because they have such a tough time getting to work, employers should overlook tardiness of blind employees. D

D--Disagreement indicates adjustment

A--Agreement indicates adjustment

*--Retained in final 42-item scale

generally accepted that the judgment of a group of individuals who are skilled in the field of investigation, is more acceptable. With this in mind, it was planned to secure instructor ratings as a criterion against which the adjustment scale could be validated. A five-point scale was developed covering the two major areas of training; that is, functional skill and general adjustment. One of the items under the section of functional skill was related to social adjustment. An instruction sheet was also written which provided a brief statement on each of the six areas previously described. In this, instructors were requested to consider only the characteristics described in the instruction sheet and to evaluate the individual only in relation to the definitions provided. The instructors' ratings were then converted into numerical value to be correlated with scores obtained on the adjustment scale. A copy of the two-section rating scale and the instruction sheet used with it may be found in Table II immediately following this section.

TABLE II (a)

RATING SCALE TO EVALUATE LEVEL OF ADJUSTMENT TO PROBLEMS OF BLINDNESS

Name	Weeks of Training Received				
	Poor	Below Average	Average	Above Average	Superior
1. Indoor orientation					
2. Travel ability					
3. Ability to manage eating problems					
4. Ability to manage dressing problems					
5. Ability to manage personal hygiene problems					
6. Ability to manage problem of social relations					
7.	General Adjustment				
a. Level of morale					
b. Outlook on blindness					
c. Outlook toward sighted					
d. Family relationship					
e. Outlook toward training					
f. Occupational outlook					

TABLE II (b)

INSTRUCTIONS FOR USE OF RATING SCALE

Consider client's ability in relation to all other clients you have known. Normal distribution should permit about 50% to be classified as average, 20% above average, 20% below average, 5% poor, and 5% superior. The following areas should be considered:

1. Indoor orientation--The degree of skill and independence in getting around indoors. Skill in visualizing room lay-out and avoiding collisions with objects; ability to negotiate stairs and freedom from groping.
2. Travel ability--The degree of skill and independence in travel including adequate use of cane. Degree of skill and independence exercised in getting about in the community.
3. Ability to manage eating problems--The extent of skill and independence in managing table service, caring for own needs in eating, acceptability of eating standards as related to posture and etiquette.
4. Ability to manage dressing problems--The extent of skill and independence exercised in caring for own needs in dressing. Skill and independence in selecting clothing for appropriateness. Cleanliness in clothing care.
5. Ability to manage personal hygiene problems--The degree of skill and independence in caring for personal hygiene such as shaving or use of cosmetics. Degree of skill and independence exercised in other matters relating to personal hygiene.
6. Ability to manage problems of social relations--The degree of skill in getting along with other people. Extent of acceptance by others and satisfaction to self in such contacts.
7. General adjustment will be rated in relation to six sub-heads to permit more precise evaluation.
 - a. Level of morale--The extent to which client possesses hope, aspiration, and confidence in his ability to cope with the future.
 - b. Outlook on blindness--The extent to which the client accepts his disability in a realistic manner, neither rejecting it as inconsequential nor succumbing to it as being totally incapacitating.

- c. Outlook toward sighted people--The extent to which client possesses a wholesome outlook toward his relationship with sighted people, neither rejecting the fact that certain assistance is required nor becoming dependent upon sighted people to do things for him which he is capable of doing for himself.
- d. Family relationships--The extent to which the client is able to cope adequately with attitudes of rejection, to resist domination and to assert himself as an equal with as little antagonism as possible.
- e. Attitude toward training--The extent to which the client has a wholesome attitude toward training, and cooperation with those providing training.
- f. Occupational outlook--The extent to which client has a realistic and wholesome attitude toward employment.



CHAPTER III

PRELIMINARY STUDIES TO REFINE THE INSTRUMENT

At Michigan State University

The first step in refining the adjustment scale was at Michigan State University with thirty-five graduate students in a course on personality diagnosis. The group was made up largely of school administrators and other individuals concerned with the education of children. After being informed of the purpose of the project, one-half of the group assumed the role of well-adjusted individuals while the second half assumed the role of poorly-adjusted individuals. They responded to each of the items on the 90-item scale by writing either plus, if they agreed with the statement, or minus if they disagreed. On the basis of analysis of responses made under these conditions, various revisions of the items were made in the interest of reducing ambiguity and increasing the clarity of the items.

At Michigan School for the Blind

The next step was to administer the scale to a group of blind individuals. The preliminary scale was administered to a high school population of forty-five students at the Michigan School for the Blind. This group ranged in grade from nine to twelve with minimum age of thirteen and maximum of twenty. There were nineteen females and twenty-six males.

The vision range included individuals who were totally blind to those who could use ordinary means of writing. About two-thirds of the group were able to write their replies by use of pencil and paper while the remainder used Braille. They were instructed to write plus if they agreed with the statement and minus if they disagreed. Unfortunately, the group was tested in a room smaller than desirable, which resulted in some confusion and may, in turn, have affected the validity of the scores obtained.

As the rating scale was not completed at this point, teachers were provided with a list of names of all students to whom the scale had been administered with a request that they select one-fourth of the group which they believed to be well-adjusted according to the definition supplied to them and one-fourth of the group which they believed to be poorly-adjusted. Adjustment rating scores were assigned to each of the forty-five subjects according to the number of times he was adjudged to be either well-adjusted or poorly-adjusted.

Reliability was computed on the ninety-item preliminary adjustment scale with the adolescent group by comparing the scores obtained on the odd-numbered items with those obtained on the even-numbered items. The coefficient of correlation was found to be .51. After correction by the Spearman-Brown formula, the reliability was .68.



The adjustment scores obtained by use of the experimental scale were found to correlate .25 with the adjustment ratings provided by the teachers. The validity of the adjustment scale under these specific conditions, therefore, was somewhat low.

An item analysis was made, comparing the responses of the eleven individuals rated highest in adjustment with the eleven individuals rated lowest. An item could be considered promising if a greater per cent of the well-adjusted group answered it in the appropriate direction than the poorly-adjusted group. Fifty-three of the ninety items were found to discriminate favorably between the two groups.

The second analysis was undertaken in which the upper and lower quarter was determined on the basis of the adjustment score rather than the adjustment rating. Sixty-nine of the items discriminated favorably between these groups. Although these item analyses provided some insight into the nature of the scale as a whole, on the basis of these findings it was considered desirable to conduct further preliminary studies with adult blind groups before selecting the items to be used in the final adjustment scale.

At Michigan Employment Institution for the Blind and Industrial Home for the Blind in New York

Two institutions for adult blind were selected in which to try out the preliminary adjustment scale. One was the Industrial Home for the Blind in Brooklyn, New York; the

other the Michigan Employment Institution for the Blind in Saginaw, Michigan. The method employed in collecting data in these centers was first, to select subjects considered to be either well-adjusted or poorly-adjusted, and then to administer the scale to these groups. This was accomplished by having the supervisory staff select individuals who they believed could be classified as either well-adjusted or poorly-adjusted. Subjects were selected with the aid of the definitions of adjustment supplied to them on the instruction sheet used with the rating scale.

In the New York study, conducted under the supervision of Dr. Nathaniel Raskin of the American Foundation for the Blind, fifteen poorly-adjusted and eleven well-adjusted individuals were selected by the staff from a total sample of approximately one hundred seventy clients. The rating scale was not used, however, with this sample.

In the Michigan agency, two supervisory staff members collaborated in selecting from a total of approximately seventy subjects thirteen individuals considered to be well-adjusted and thirteen considered to be poorly-adjusted. One rating was obtained on each subject to whom the adjustment scale was administered.

The technique of administering the scale with these groups was as follows: A small plywood tray was designed with three compartments sufficiently large to hold 3" x 5" cards. These were given to each subject with a set of cards consecutively numbered from one to ninety and placed in the

central section of the tray. After each tenth card a piece of sandpaper was inserted so that the blind individual would have a tactual check on whether or not he had turned over the cards in the appropriate order. Basically, the technique for administering tests in this manner was previously developed by Potter and described in a paper by him in the 1947 conference at the University of Michigan [14]. In administering the scale, the blind subjects were instructed to pick up the top card in the central section as each item was read and place it in the right side of the tray if they agreed with the item or the left side of the tray if they disagreed. This method was considered advantageous for two reasons: First, it was believed that individuals would respond more objectively to items if it was not necessary for them to make a verbal or written statement. Second, this technique greatly facilitated the method of administering, as well as scoring, the responses.

In describing the adjustment scale to blind subjects, it was identified as an opinion survey about problems relating to blindness. The scale was so labeled in an attempt to disguise the real purpose of the test.

The data thus obtained were analyzed in a comparable manner to the adolescent sample. With the twenty-six cases in Saginaw the corrected odd-even reliability was .60. With the twenty-six cases from Brooklyn, the corrected reliability was .64. This was comparable to the corrected reliability of .68 obtained from the adolescent group as previously reported.

The data compiled with the Saginaw sample included adjustment and skill ratings on the five-point scale. The score obtained on the adjustment scale was then correlated with the rating score. With the use of the twenty-six cases in the Saginaw group a validity coefficient of .36 was obtained. This was somewhat higher than the validity of .25 obtained with the adolescent group. The difference may have been due to the fact that the conditions for administering the scale were better with the adult group and furthermore, that, instead of having eighteen teachers applying ratings, there were only two supervisors with this adult sample.

An item analysis was completed on the data obtained with the blind adults on a comparable basis to the analysis with the adolescent sample. The one difference was that the entire adult blind group from both Saginaw and New York were divided into two extreme groups, which provided us with twenty-eight subjects identified as poorly-adjusted and twenty-three as well-adjusted. The per cent of the group answering the item in the desired direction was then computed. To be of use the item should be answered appropriately by a greater per cent of the well-adjusted group than the poorly-adjusted group. In this study sixty-six of the ninety items were answered in the desired direction by a greater per cent of individuals classified as well-adjusted.

On the basis of these findings, approximately one-half of the ninety items in the preliminary scale were selected for use in the final scale. It appeared desirable to include an

even number of items in each of the sub-scales. In keeping with this consideration, the seven most discriminating items in each of the sub-scales were selected for inclusion in the final adjustment scale. The items selected for the final scale are listed under Table III. The table appears in six parts, each part including the items selected for one sub-scale. This table also indicates the extent of discrimination between the poorly-adjusted and the well-adjusted group.

In an attempt to secure some further indication as to what might be anticipated with the use of this forty-two-item scale, the responses on these selected items were re-scored for the adult sample. The odd-even reliability was found to be .83 after correction by the Spearman-Brown formula. The correlation of the adjustment score with supervisors' ratings provided a validity of .55. These data suggested that the scale had now been sufficiently refined from the standpoint of reliability and validity to warrant its use with persons undergoing training at adjustment centers as a means of gaining insight and analyzing factors relating to adjustment to blindness.

TABLE III--Part 1
MOST DISCRIMINATING ITEMS

"M" (Morale) Sub-Scale				
Item No.	Item	Per Cent "Adjusted" Responses		Diff. of %
		Poorly Adjusted	Well Adjusted	
19	It's difficult for a person to think clearly these days. D	31	51	20
31	Life is just one worry after another in these times. D	35	59	24
37	No one cares much what happens to you. D	60	73	13
49	Life is just a series of disappointments. D	53	86	33
55	In times like these, one is inclined to give up hope of getting ahead. D	38	86	48
73	Most people are usually happiest during their childhood. D	17	38	21
85	It's great to be living in these exciting times. A	78	91	13

D--Disagreement indicates adjustment
A--Agreement indicates adjustment

TABLE III--Part 2
MOST DISCRIMINATING ITEMS

"S" (Sighted) Sub-Scale				
Item No.	Item	Per Cent "Adjusted" Responses		Diff. of %
		Poorly Adjusted	Well Adjusted	
8	A blind person would be better off if he chose mainly sighted friends. D	82	91	9
14	There are altogether too many sighted people working in agencies serving the blind who do not know the problems of blindness. D	17	30	13
20	Because they know each other's problems better, the blind can put their trust in other disabled people more than those not disabled. D	21	73	52
38	It may be dangerous for a blind person to do something alone, but it's better than asking for help. D	38	73	35
44	Most people who work with the blind are really interested in helping them. A	70	86	16
74	Most sighted people just pretend they like you. D	60	91	31
86	Sighted people expect the blind person to do things that are impossible. D	56	91	35

D--Disagreement indicates adjustment
A--Agreement indicates adjustment

TABLE III--Part 3
MOST DISCRIMINATING ITEMS

"B" (Blind) Sub-Scale				
Item No.	Item	Per Cent "Adjusted" Responses		Diff. of %
		Poorly Adjusted	Well Adjusted	
9	A person might as well accept the fact that blindness makes people pretty helpless. D	56	86	30
21	Many people become blind as a kind of punishment for something they did. D	78	91	13
27	When you are blind you are constantly worried about what may happen to you. D	38	64	26
51	It is only natural for blind people to do an awful lot of daydreaming. D	49	73	24
57	With the progress being made by medical science, there is little doubt that most blindness will be curable in the near future. D	42	59	17
63	There are things worse than being blind. A	82	95	13
69	A blind person shouldn't have to meet the same standards as others. D	53	78	25

D--Disagreement indicates adjustment
A--Agreement indicates adjustment

TABLE III--Part 4
MOST DISCRIMINATING ITEMS

"F" (Family) Sub-Scale				
Item No.	Item	Per Cent "Adjusted" Responses		Diff. of %
		Poorly Adjusted	Well Adjusted	
4	One trouble with many families is that they expect too much from the blind person. D	45	83	37
22	A blind person cannot find as much understanding at home as he can find somewhere else. D	31	59	28
46	There are too many members of a blind person's family who are just too curious about one's personal affairs. D	42	73	31
52	It's pretty hard for a blind person to keep a pleasant disposition at home. D	49	91	42
58	One trouble that many blind people have is that they can't trust their families. D	60	82	22
76	It's all too true that a blind person's relatives don't like others to know there is a blind person in the family. D	31	55	24
88	Some people in the family act as though the blind person is a burden to them. D	24	47	23

D--Disagreement indicates adjustment

TABLE III--Part 5
MOST DISCRIMINATING ITEMS

"T" (Training) Sub-Scale				
Item No.	Item	Per Cent "Adjusted" Responses		Diff. of %
		Poorly Adjusted	Well Adjusted	
5	Blind people are not getting good jobs because they are not getting good training. D	38	51	13
23	A good education is a great comfort to a blind person who is out of work. A	60	73	13
47	The more education a blind person has, the better he is able to enjoy life. A	70	82	12
53	With proper training a blind person can do just about anything a sighted person can do. D	31	59	28
65	Most of the training offered to the blind is useless in really helping them with their problems. D	56	73	17
71	A lot of job training offered blind people is just a way of getting them to work for nothing. D	56	68	12
77	A training center gives a blind person a chance to learn to be independent. A	74	91	17

D--Disagreement indicates adjustment
A--Agreement indicates adjustment

TABLE III--Part 6
MOST DISCRIMINATING ITEMS

"O" (Occupational) Sub-Scale				
Item No.	Item	Per Cent "Adjusted" Responses		Diff. of %
		Poorly Adjusted	Well Adjusted	
6	A blind person has to accept the fact that there are many jobs he simply cannot do. A	70	86	16
18	A blind person who has ability and is willing to work hard has a good chance of being successful. A	70	95	25
24	In deciding production rates, employers should make considerable allowance for a blind person's handicap. D	35	64	29
66	Even though you aren't highly skilled, you can do just as well if you really want to. D	24	47	23
72	Employers have a way of expecting a blind person to do things that aren't required of others. D	60	78	18
78	It is more important for a blind person to have pull than to have real ability. D	45	73	28
90	Because they have such a tough time getting to work, employers should overlook tardiness of blind employees. D	53	73	20

D--Disagreement indicates adjustment
A--Agreement indicates adjustment

CHAPTER V

STANDARDIZATION STUDY

Description of Training Centers

On the basis of information compiled by the Office of Vocational Rehabilitation prior to the Spring Mill Conference [18] and the information collected with the use of a questionnaire during the present study, investigation was limited to the population available in nine adjustment centers. This included the centers at Talladega, Alabama; Little Rock, Arkansas; Daytona Beach, Florida; Chicago, Illinois; Topeka, Kansas; Minneapolis, Minnesota; Brooklyn, New York; Dayton, Ohio; and Butner, North Carolina. Four of these centers were operated by state agencies providing vocational rehabilitation services for blind. Five were operated by private agencies working in cooperation with public rehabilitation agencies. The latter included the centers at Little Rock, Arkansas; Chicago, Illinois; Minneapolis, Minnesota; Brooklyn, New York; and Dayton, Ohio.

The duration of training varied greatly from center to center. Most of the centers operated a program lasting from six to twelve weeks with the understanding that additional training could be arranged if indicated. The only center which operated on a more extended basis was that in North Carolina. Here the program operated on a comparable basis

to the public school system, where a new group was entered each fall and remained throughout the year until the following June so that in most instances trainees received training over a considerably longer period of time.

The training of Negro blind presented a problem in some of these states operating centers. In Florida, white and Negro groups were alternated at the same center. In Alabama and North Carolina separate programs were operated for each of the two groups concurrently with separate facilities and staff. In most of the centers, Negro blind were trained concurrently with other trainees, using the same staff and facilities.

Sociological Analysis

In Table IV is presented a breakdown of the total sample in terms of various categories which were considered relevant; race, sex, center at which subject was trained, amount of training, marital status, etc.

The total sample included ninety-two white trainees, of which sixty-four were male and twenty-eight female, and sixty-three Negroes, of which thirty-nine were male and twenty-four female. Two-thirds of the group, therefore, were male and one-third female. Approximately sixty per cent of the group were white and forty per cent Negro.

In considering the distribution of subjects from different centers, it was noted that North Carolina provided the largest number with a total of forty-seven, followed

TABLE IV
POPULATION DATA

Variables	Total Sample	White	Average Score	Negro	Average Score
<u>Total Population</u>	155	92	28.36	63	19.29
Male	103	64	27.63	39	18.33
Female	52	28	30.04	24	20.79
<u>Centers</u>					
Alabama	32	12		20	
Arkansas	16	16			
Illinois	9	9			
Florida	19	3		16	
Kansas	8	8			
Minnesota	4	4			
New York	9	8		1	
North Carolina	47	21		26	
Ohio	11	11			
<u>Age</u>					
15 through 24 years	40	30		10	
25 through 34 years	36	19		17	
35 through 44 years	38	17		21	
45 through 54 years	26	14		12	
55 years and up	13	10		3	
N. R.*	2	2			
<u>Amount of Training</u>					
Less than 1 week	5	4	24.00	1	23.00
1 to 6 weeks	43	24	29.67	19	18.32
7 to 12 weeks	44	24	26.75	20	19.50
13 to 24 weeks	25	23	27.87	2	16.50
25 to 36 weeks	22	11	31.18	11	20.55
37 to 48 weeks	13	3	26.67	10	19.40
Over 48 weeks	1	1	30.00		
N. R. *	2	2			
<u>Marital Status</u>					
Single	82	54	28.50	28	21.50
Married	49	28	27.93	21	17.90
Divorced	13	5	26.80	8	18.38
Widowed	10	4	31.25	6	14.83
N. R. *	1	1			

*No Response

TABLE IV (continued)

Variables	Total Sample	White	Average Score	Negro	Average Score
<u>Age at Onset of Blindness</u>					
0 to 9 years	51	33	29.18	18	22.22
10 to 19 years	26	18	28.72	8	22.25
20 to 29 years	29	14	29.29	15	19.33
30 to 39 years	21	8	29.38	13	16.46
40 to 49 years	12	7	23.00	5	11.80
50 to 59 years	12	9	27.33	3	13.33
60 years or over	0				
N. R.*	4	3		1	
<u>Number of Years Blind</u>					
0 to 4 years	40	23	27.17	17	17.94
5 to 9 years	25	17	28.06	8	17.63
10 to 14 years	20	8	30.00	12	17.83
15 to 19 years	14	9	29.78	5	24.80
20 to 24 years	22	16	27.31	6	23.83
25 years or more	31	17	30.17	14	18.14
N. R.*	3	2		1	
<u>Light Perception or Less</u>	92	56	28.95	36	18.56
<u>More than Light Perception</u>	62	36	27.44	26	19.77
N.R.*	1			1	
<u>School for Blind</u>					
Those who attended	47	35	30.26	12	24.92
Not attended	98	54	27.44	44	18.36
N.R.*	10	3		7	
<u>Years of Education</u>					
0 to 3 years	16	3	28.00	13	16.92
4 to 6 years	31	11	29.00	20	15.50
7 to 9 years	31	17	26.53	14	21.86
10 to 12 years	37	30	30.57	7	28.86
12 years or over	12	9	31.67	3	24.00
N. R.*	28	22		6	
<u>Type of Home Community</u>					
Rural	46	25	30.24	21	20.57
Towns	18	4	28.75	14	15.93
Cities	80	52	27.40	28	19.96
N. R. *	11	11			

*No Response

TABLE IV (continued)

Variables	Total Sample	White	Average Score	Negro	Average Score
<u>Work Experience</u>					
Yes	47	34	30.56	13	19.92
No	106	57	27.00	49	19.27
N.R.*	2	1		1	
<u>Other Family Members Blind</u>					
Yes	26	12	25.83	14	16.57
No	124	78	28.86	46	20.00
N.R.*	5	2	.	3	

*No Response

closely by Alabama with thirty-two. The least number of cases were from Minnesota, where four subjects were tested.

In considering training, it was noted that more than half of both whites and Negroes were trained for less than twelve weeks. Considering the total population, approximately sixty per cent of the group was in training less than twelve weeks. Those having more than this amount of training were largely trainees from North Carolina.

The age range for the whites was from fifteen to sixty-nine; for the Negroes from nineteen to fifty-nine. In the white sample forty-one, or about forty-five per cent, were less than thirty years of age. In the Negro sample eighteen, or twenty-eight per cent, were less than thirty years of age. The median age for the whites was 33.5; the mean 34.7. The median age for Negroes was 37; the mean 36.7. The Negroes as a group were, therefore, somewhat older than the whites.

In considering marital status, it was found the majority were single. In the white sample fifty-four were reported single while thirty-seven were either married or had been married. In the case of Negroes, twenty-eight were single while thirty-five were either married or had been married. The proportion of those married was higher for the Negro sample.

In reviewing the information on age at onset of blindness, it was found in the white sample fifty-one became blind prior to twenty years of age while twenty-six Negroes became blind prior to this age. Approximately one-half of the total sample, therefore, became blind prior to twenty years of age. Although the incidence appeared to drop off as age increased this should not be interpreted to mean that blindness is a condition associated with youth. Rather, the sample of blind population in adjustment centers, where clientele are considered as rehabilitation prospects, would necessarily be a more youthful group.

In the information on number of years blind, it was found in the white sample forty-eight, or approximately half, had been blind less than fifteen years. In the Negro sample thirty-seven, or somewhat more than half, had been blind for less than fifteen years.

In considering the distribution on the basis of acuity of vision, it was noted that fifty-six, or about sixty per cent, of the white sample had light perception or less. The proportion was almost identical for the Negro sample.

In the white sample it was found that thirty-five, or about a third, attended a school for the blind, while among the Negroes only twelve, or about a fifth, attended such schools. This may have been due to the fact that there was less favorable opportunity for the latter group.

The information on years of education was closely related to attendance at schools for blind. Comparing the number who completed the first six grades, or elementary education, it was found in the white sample that fourteen completed only the elementary school compared to forty-seven who completed high school. This situation was reversed in the case of the Negro sample where it was found thirty-three completed education through the elementary grades while twenty-one completed high school training. These data also suggested that opportunities appeared to be more limited for Negroes than for whites.

In comparing the information on the kind of home areas from which the trainees came, it was found that twenty-nine of the whites came from rural areas or small towns, compared to fifty-two from cities; while in the Negroes, thirty-five came from rural areas or small towns, compared to twenty-eight from cities. Again the situation appeared to be reversed for these two groups. In the case of whites, the majority came from cities while in the case of Negroes, the majority came from rural areas or small towns.

It was found that the whites had some opportunities for work experience. Thirty-four reported such opportunity

against fifty-seven who did not. Among the Negroes, thirteen reported work experience, compared to forty-nine who had no such opportunity.

The final item provided information on the number of individuals who came from families where there were other blind members. Here it was found that eighty per cent of the whites came from homes in which there were no other blind people while seventy-six per cent of the Negroes came from homes in which there were no other blind individuals.

Procedure

The procedure employed in collecting data in this phase of the study was comparable to that employed in the preliminary section. In each instance the staff was informed of the purpose of the study and invited to cooperate by providing ratings on each of the trainees known to them. An attempt was made to secure three independent ratings on each trainee in every center. Instructions were reviewed so that each group would have identical information. Instructors were requested to rate trainees as objectively as possible.

After ratings had been obtained from the instructors, trainees were brought together as a group. In most instances, data were obtained from women and men separately. An attempt was made to keep the group relatively small, with a maximum of fifteen clients. The usual procedure included instructions to the group on the purpose of the survey, and an attempt was made to impress them with the fact that information

gathered in the study was to be used for experimental purposes and would not be a part of their records at the training center. Information was also obtained from each client on sociological factors reviewed in the previous section.

Administration of the Measuring Instruments

As before, each client was supplied with a three-sectional tray with forty-two consecutively-numbered cards in the central section. The only difference in this arrangement from the original was that a sheet of sandpaper was placed after each sixth card instead of each tenth to permit more frequent check. The instructions on the use of the scale had been revised somewhat in an effort to provide a greater degree of clarity. (See Appendix A for instructions used in administering the scale.) To provide an objective approach, these instructions were read verbatim to each group. Individuals were further encouraged to raise questions about the instructions in case they were not entirely clear. The trainees were then instructed to take a card from the central section after each item had been read and place it to the right if they agreed and to the left if they disagreed. A check was made after each sixth item by requesting trainees to raise their hand if they did not locate a sandpaper sheet. Upon completion of the forty-two items, the information was placed on the printed sheet containing the background data. (See Appendix B for Score Sheet and Background Data form.)

Following the above procedure, data were compiled on 155 cases, which included 92 white and 63 Negro trainees. This included all of the trainees who were in attendance in the nine selected adjustment centers in the United States at the time this part of the study was in process.

Scoring of the Tests

The adjustment scale was scored by giving one point for each item answered in the direction indicating good adjustment. Higher scores would indicate a better level of adjustment. The highest possible score therefore was 42; the lowest 0.

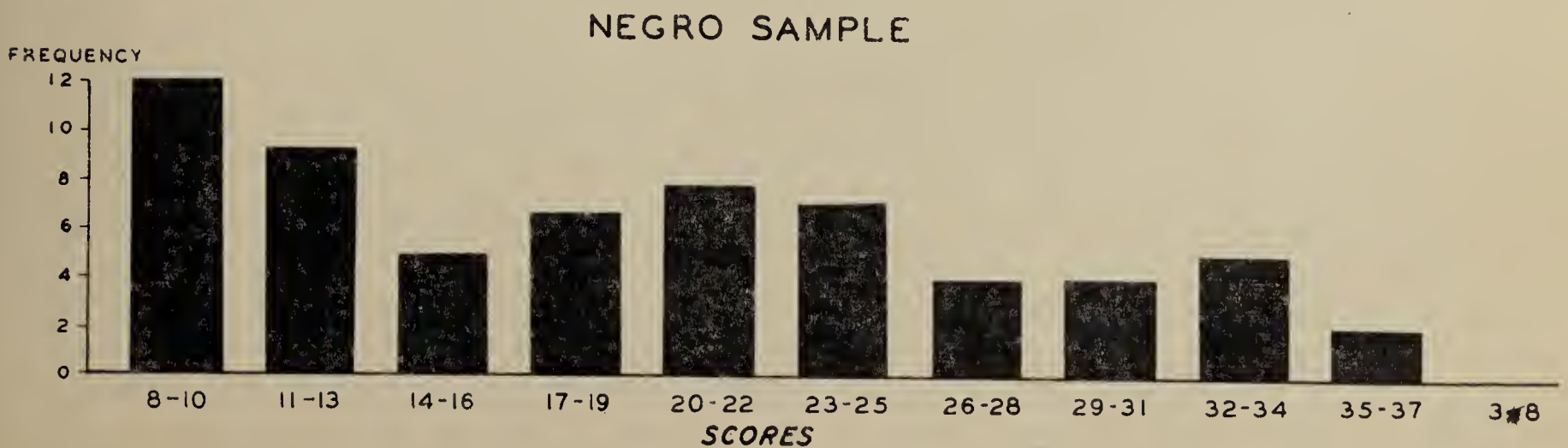
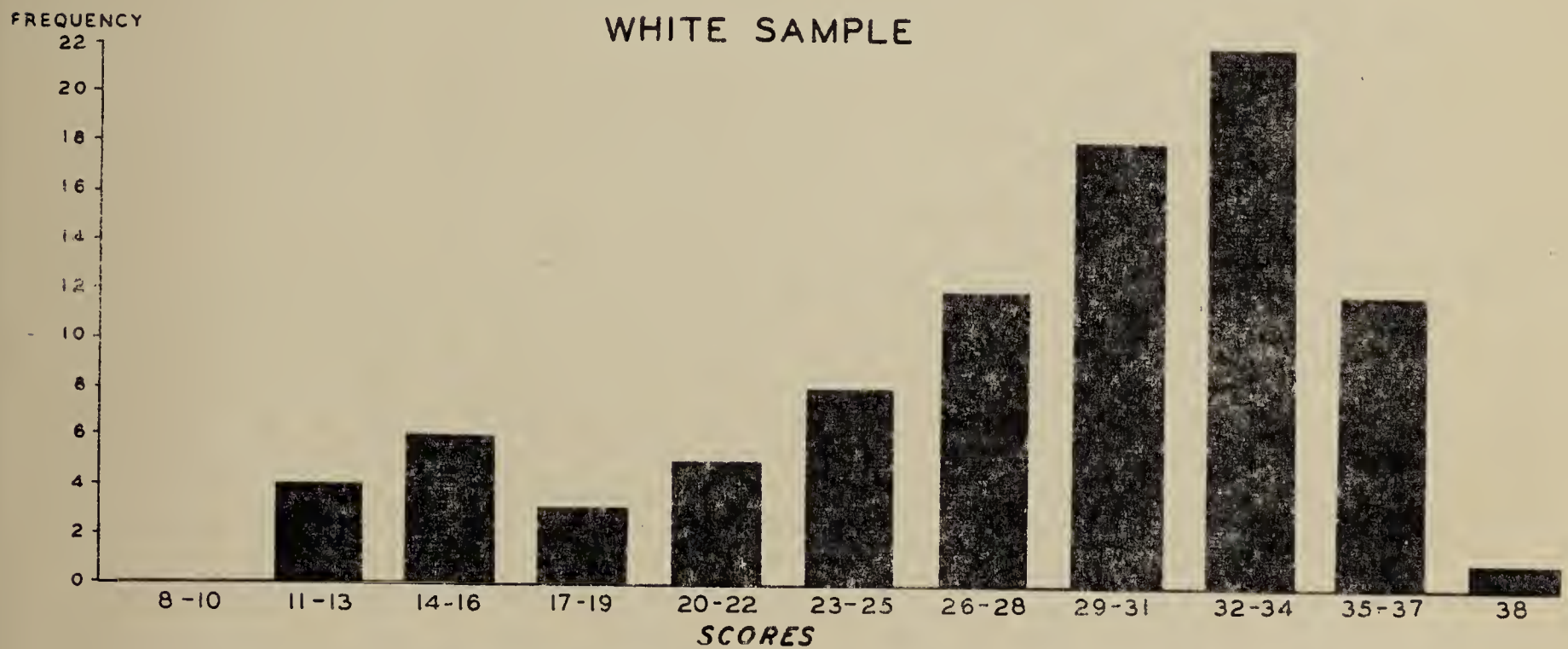
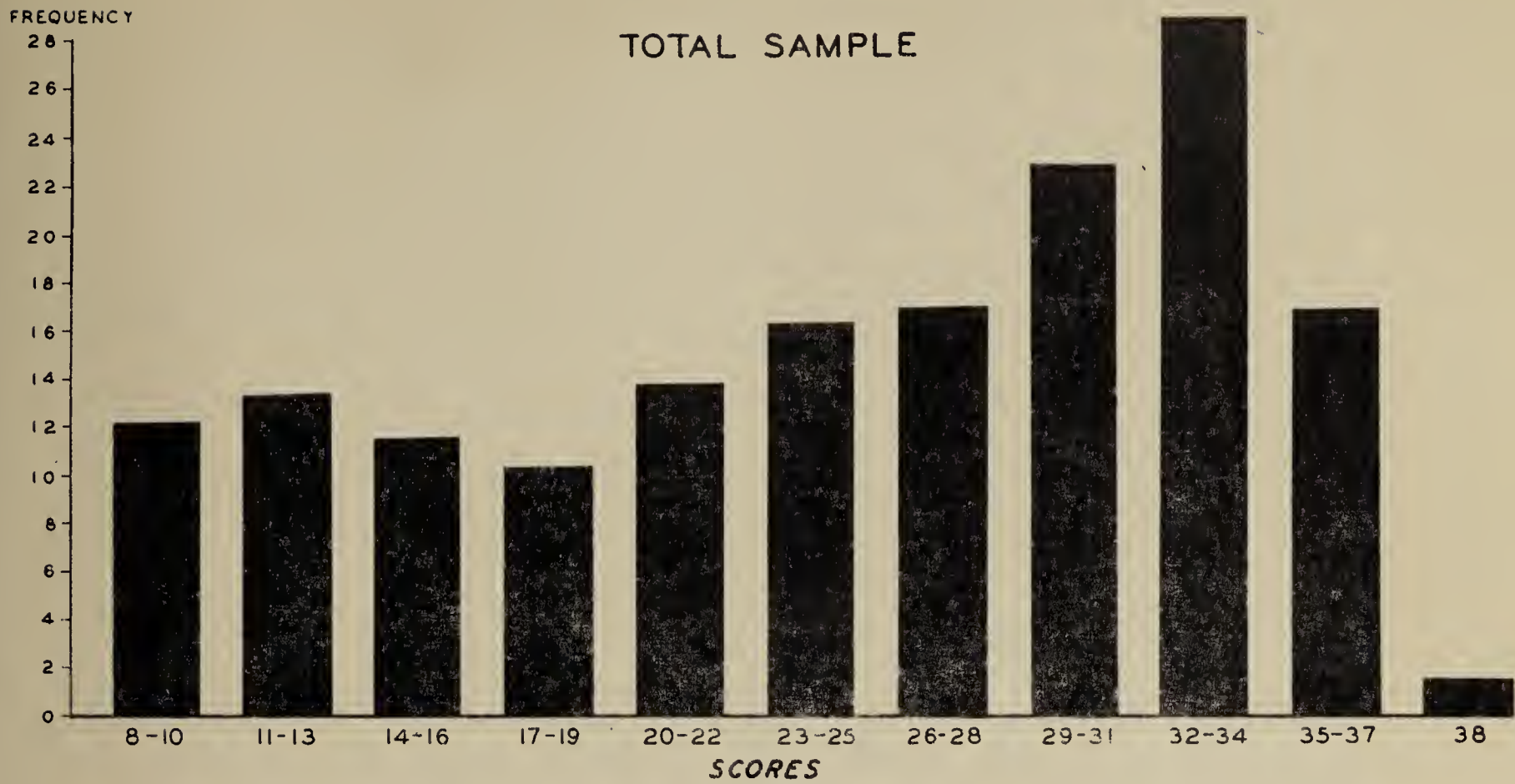
Ratings were made on the five point scale by instructors, as in the preliminary study, in each of the six areas of adjustment and six areas of skill. The six adjustment ratings were totaled to obtain a single adjustment rating. The six skill ratings were combined into a single skill rating. Since most of our subject's ratings on adjustment and skill were made by two or three judges, the average of such ratings was computed for each individual. It should be pointed out that different numbers and combinations of judges rated different individuals at various centers. Thus, in computing reliability among the various judges, it should be kept in mind that these figures are not based upon the same judges for all cases.

Results

Distribution of adjustment scores. Figure 1 presents the distribution of adjustment scores for the total sample of 155 cases; for the white group (N-92) and the Negro group (N-63) separately. It will be noted that the total distribution is not an adequate representation of the distribution obtained with the white and Negro sub-sample, where the distribution of scores for the whites are piled up toward the high adjustment end of the scale and skewed to the left, the distribution for the Negroes is piled to the low end and skewed to the right.

There are two possible explanations for the difference in the distribution found between Negro and white blind. First, it may be the function of the fact that Negroes, by virtue of their social and economic position in southern society, are typically less well adjusted than whites. Second, it may be the function of the fact that Negroes, by virtue of their generally submissive position in the south, respond to the items in general by agreeing with them rather than by disagreeing, thereby obtaining a low adjustment score. If the latter were the case, then we should expect to find considerably lower validities when employing the ratings as external criteria for the Negroes than for the whites. Data bearing on this point will be presented later. In view of the marked differences in scores between the white and Negro

DISTRIBUTION OF ADJUSTMENT SCORES



group, it appears necessary to analyze the data of these two groups separately.

Distribution of sub-scale scores. The study of the distribution of each of the 7-item sub-scales might be helpful in gaining a better understanding of the distribution of the total scores as presented in Figure 1. An analysis of the sub-scale score distribution is presented in Figure 2 for both the white and the Negro sample.

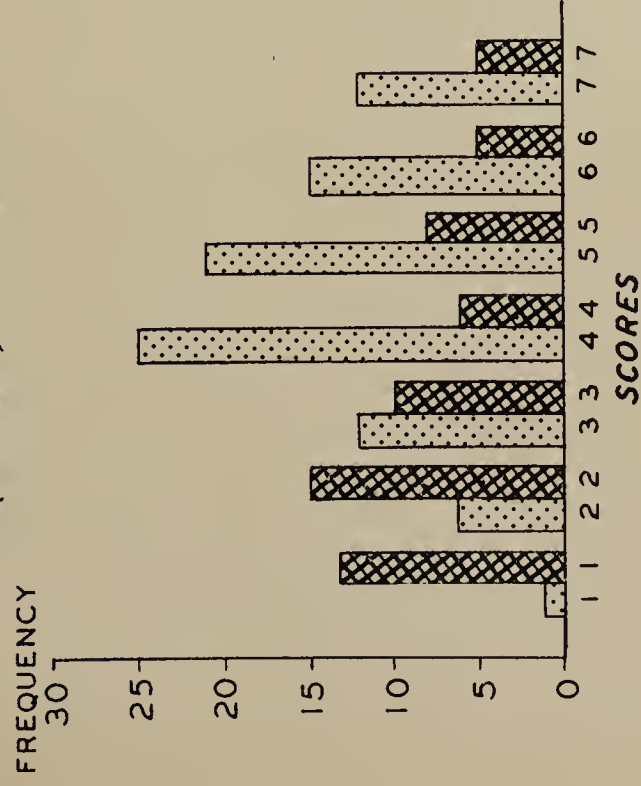
In the white sample there was a tendency for the distribution to be skewed to the left; i.e., a greater number of individuals received high scores. Table V provides a comparison between the scores. The highest mean is in the "Occupational" sub-scale, the lowest in the "Sighted" sub-scale; however, the average is 4.73. In the Negro sample it was noted that there was an opposite tendency; namely, that the distribution had a tendency to skew to the right; i.e., a greater number of individuals received low scores. Again comparing the mean, we found that the highest was in "Training" while the lowest was in the "Sighted" sub-scale. The average of the means was 3.21, or about as far to the right of center as the white group is to the left.

In the "F" sub-scale it was noted that twelve Negro clients received a zero score, and four white clients received such a score. This was the only sub-scale in which individuals in either group received such a score. Therefore, the "Family" sub-scale had a greater range than any other.

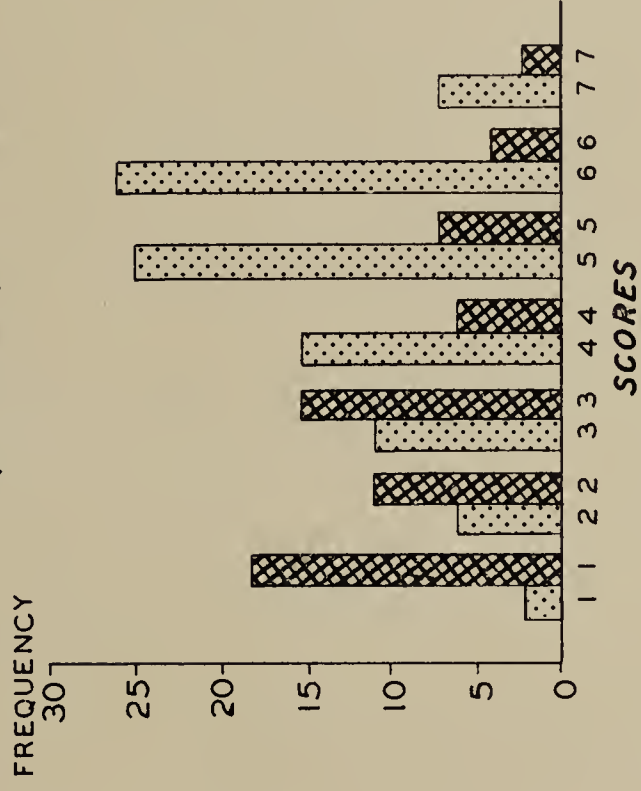
Figure 2
DISTRIBUTION OF SUBSCALE SCORES

WHITE NEGRO

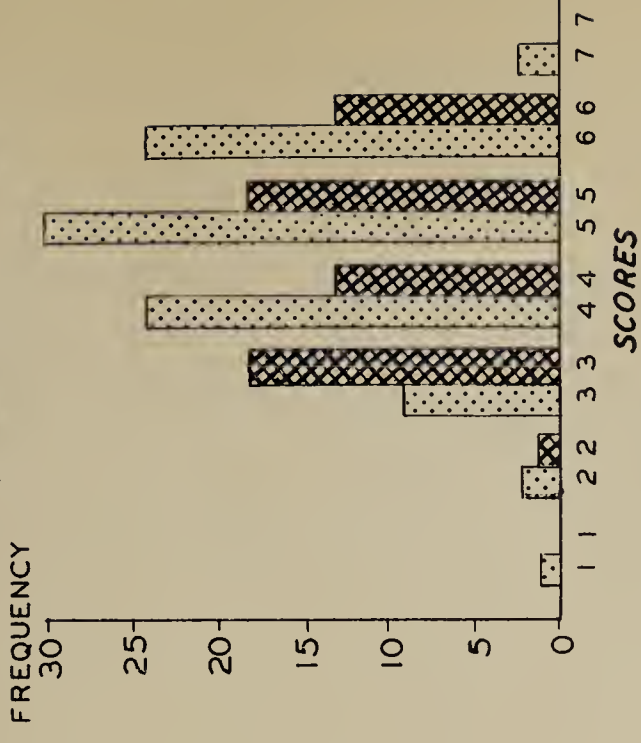
M(MORALE) SUBSCALE



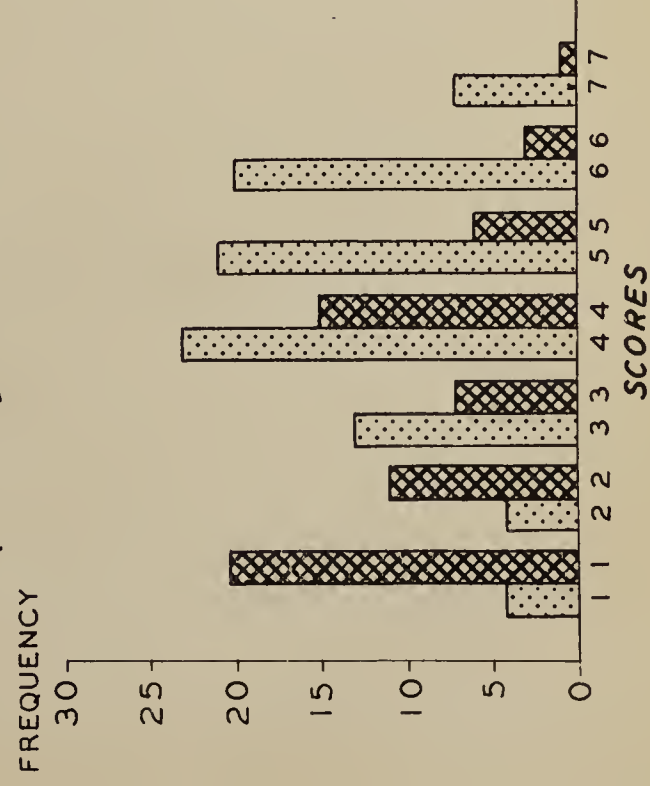
B'(BLINDNESS) SUBSCALE



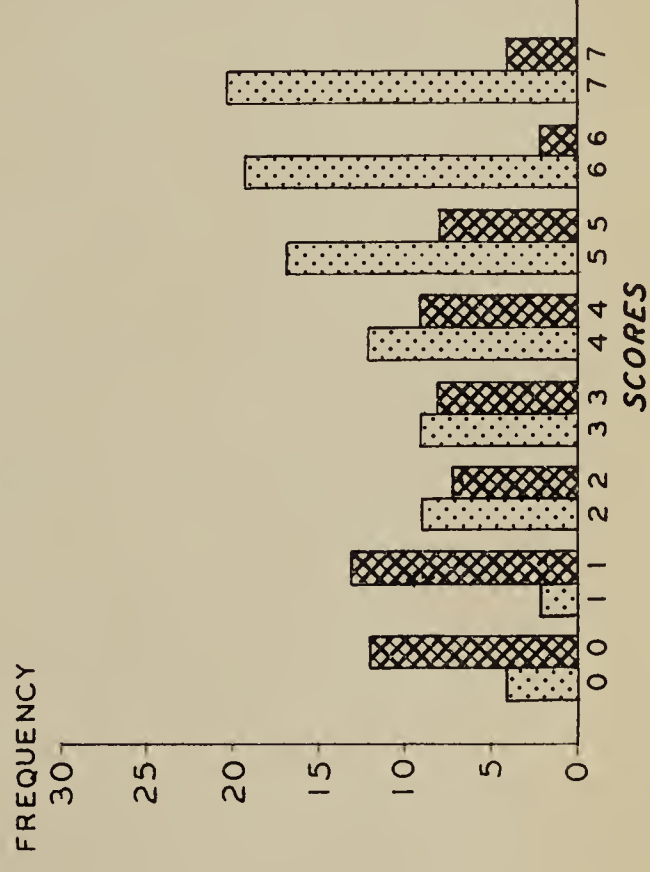
T'(TRAINING) SUBSCALE



S'(SIGHTED) SUBSCALE



F'(FAMILY) SUBSCALE



O'(OCCUPATIONAL) SUBSCALE

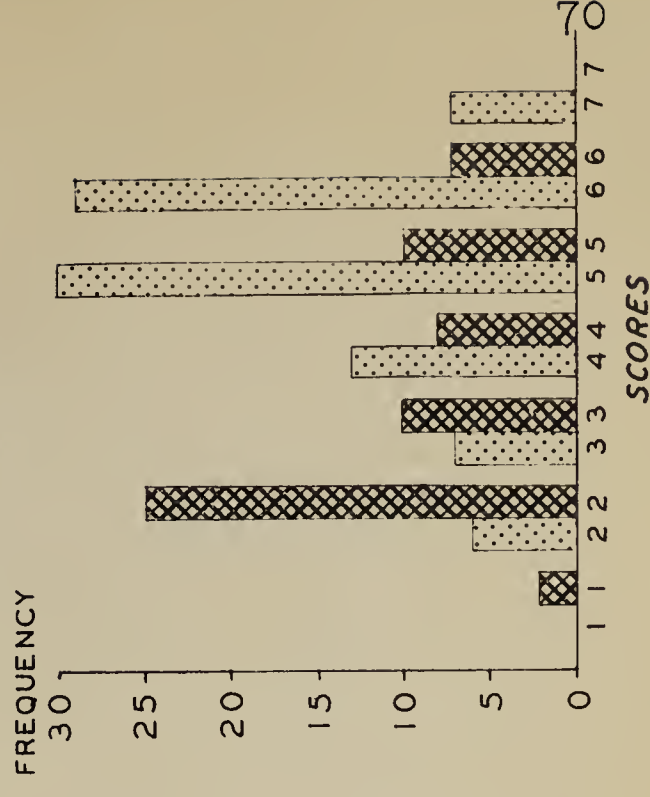


TABLE V

A COMPARISON OF SUB-SCALES BETWEEN WHITE AND NEGRO
SAMPLES, PROVIDING THE MEAN, S. D., AND T-RATIO

Sub-Scale	Mean		S. D.		T - Ratio
	White	Negro	White	Negro	
"M" (Morale)	4.65	3.24	1.60	1.88	4.88
"S" (Sighted)	4.54	2.82	1.58	1.64	6.51
"B" (Blindness)	4.75	2.89	1.59	1.71	6.84
"F" (Family)	4.72	2.65	1.95	2.12	6.18
"T" (Training)	4.74	4.38	1.23	1.15	1.80
"O" (Occupational)	4.96	3.29	1.31	1.46	7.29
Average of Mean	4.73	3.21			

Further comparison between the white and Negro samples was made by comparing the t-ratio as shown in Table V. It was noted that the t-ratios for the "Sighted," "Blindness," and "Occupational" sub-scales were very high. The only scale in which the difference between the means was not statistically significant was in the "Training" sub-scale. In comparing the mean of the Negro score to the mean of the white score, there were differences that were statistically significant in five out of the six sub-scales. This provided further evidence that it was necessary to treat the data obtained from these two groups separately. It further suggested that the Negro group tended to be more maladjusted than the white group, an observation which was substantiated in later analysis.

Reliability of the adjustment scale. Reliability was determined by comparing the odd against the even-numbered items. In the white group the correlation was found to be .88; for the Negro group .87. After correction by the Spearman-Brown formula, the reliabilities were .94 and .93 respectively. It should be noted that these correlations were higher than those obtained in the preliminary study, where the same forty-two items yielded a corrected correlation of .83. The present reliability was considered quite satisfactory for a scale purporting to measure such a complex thing as personal adjustment.

To determine further internal consistency of the tests, the total adjustment score was correlated with the six sub-scale scores. Table VI shows the relationship between each of the sub-scales and the total adjustment score, as well as the mean and standard deviation for the various sub-scales.

It was noted that the correlations between sub-scale scores and total scores for both white and Negro groups in general were relatively high. For the white group the reliability was from .46 to .85. For the Negro group the range was from .64 to .88. Five of the reliabilities were in the .80's, five in .70's, one in the .60's, and one in the .40's. The sub-scale scores correlated to a greater degree with the total adjustment score in the Negro group than in the white group. In both groups the "T" (Training) sub-scale

correlated to a lesser degree with the total score. The correlation of the "F" (Family) sub-scale appeared to be the most satisfactory. These results further substantiate the previous conclusion that the adjustment scale was a reliable measure for both white and Negro groups.

TABLE VI
MEANS AND STANDARD DEVIATIONS FOR SUB-SCALES
AND CORRELATION BETWEEN ADJUSTMENT
SCORES AND SUB-SCALES

Sub-Scale	White (N=92)			Negro (N=63)		
	r	M	S.D.	r	M	S.D.
<u>Total Adjustment Scale</u>		28.36	6.32		19.27	8.18
<u>Adjustment Sub-Scales</u>						
"M" (Morale)	.70	4.65	1.46	.88	3.24	1.88
"S" (Sighted)	.74	4.54	1.46	.87	2.82	1.64
"B" (Blindness)	.76	4.75	1.45	.80	2.89	1.71
"F" (Family)	.85	4.72	1.95	.87	2.65	2.12
"T" (Training)	.46	4.74	1.14	.64	4.38	1.15
"O" (Occupational)	.70	4.96	1.27	.79	3.29	1.46

Another method of determining internal consistency of the adjustment scale was by item analysis which follows this section.

Item analysis of the adjustment scale. The data on item analysis are presented in Table VII. In this is reported the per cent of answers in the direction indicating

adjustment, comparing the quarter with the lowest adjustment score to the quarter with the highest adjustment score. The difference in per cent of the appropriate answers and the t-ratio between these groups is also given.

In reviewing the entire scale for the white group it was found that there were twenty-nine of the forty-two items, or about seventy per cent, which discriminated significantly between high and low-adjusted groups. For the Negro sample, thirty-one of the forty-two items, or about seventy-six per cent, discriminated significantly between the two groups on the basis of their adjustment score. Three items discriminated significantly for the Negro group (Nos. 7, 21 and 27) but did not so discriminate for the white group. Only one item (No. 24) was significantly discriminatory for the white group but not for the Negro group. Numbers 26 and 33 discriminated to a limited degree for the whites but not for the Negroes. Twenty-six of the items which discriminated satisfactorily for both groups had a higher t-ratio for the Negro sample than the white sample. Only four items (Nos. 10, 16, 20 and 40) had a higher t-ratio for the white group than the Negro group. Seven of the items had a negative relationship, indicated by the fact that the low-adjusted group for either white or Negro had a higher per cent of items answered appropriately than the high-adjusted group (Nos. 11, 12, 17, 23, 33, 37 and 41). It was interesting to note that all except one of these items (No. 23) were answered in the adjusted direction by agreement rather than disagreement. The latter

TABLE VII
ITEM ANALYSIS DATA
(White N=23--Negro N=16)*

No.	Item	Per Cent "Adjusted" Responses		Diff. of %	T- Ratio
		Poorly Adjusted	Well Adjusted		
1.	In times like these, one is inclined to give up hope of get- ting ahead. D				
	W.	35	83	48	3.81
	N.	13	75	62	4.53
2.	A blind person would be better off if he chooses mainly sighted friends. D				
	W.	17	70	53	4.24
	N.	6	69	63	4.85
3.	A person might as well accept the fact that blindness makes people pretty helpless. D				
	W.	52	96	44	2.65
	N.	0	81	81	8.26
4.	One trouble with many families is that they expect too much from the blind person. D				
	W.	48	100	52	5.00
	N.	6	88	82	8.12
5.	Blind people are not getting good jobs be- cause they are not getting good training. D				
	W.	17	65	48	3.78
	N.	19	81	62	5.18

*White--t-ratio: 1 per cent level = 2.69;
5 per cent level = 2.01
Negro--t-ratio: 1 per cent level = 2.75;
5 per cent level = 2.04
D--Disagreement indicates adjustment

TABLE VII (continued)

No.	Item	Per Cent "Adjusted" Responses		Diff. of %	T- Ratio
		Poorly Adjusted	Well Adjusted		
6.	A blind person has to accept the fact that there are many jobs he simply cannot do. A				
	W.	74	78	4	.32
	N.	13	25	12	1.06
7.	It is difficult for a person to think clearly these days. D				
	W.	43	70	27	1.93
	N.	0	75	75	6.94
8.	There are altogether too many sighted people working in agencies serving the blind who do not know the problems of blind people. D				
	W.	30	43	13	.93
	N.	0	19	19	1.94
9.	Many people become blind as a kind of punishment for something they did. D				
	W.	65	100	35	3.57
	N.	13	69	56	3.92
10.	A blind person cannot find as much understanding at home as he can find somewhere else. D				
	W.	30	74	44	3.33
	N.	6	50	44	3.19
11.	A good education is a great comfort to a blind person who is out of work. A				
	W.	83	74	-9	
	N.	100	75	-25	

A--Agreement indicates Adjustment

TABLE VII (continued)

No.	Item	Per Cent "Adjusted" Responses		Diff. of %	T- Ratio
		Poorly Adjusted	Well Adjusted		
12.	A blind person who has ability and is willing to work hard has a good chance of being successful. A				
	W.	100	91	-9	
	N.	100	100	0	
13.	Life is just one worry after another in these times. D				
	W.	22	83	61	5.21
	N.	0	69	69	5.94
14.	Because they know each others' problems better, the blind can put their trust in other disabled people more than those non-disabled. D				
	W.	26	78	52	4.13
	N.	0	63	63	5.20
15.	When you are blind you are constantly worried about what may happen to you. D				
	W.	13	91	78	3.88
	N.	0	50	50	4.03
16.	There are too many members of a blind person's family who are just too curious about one's personal affairs. D				
	W.	22	100	78	8.96
	N.	6	63	57	4.22
17.	The more education a blind person has, the better he is able to enjoy life. A				
	W.	78	78	0	
	N.	100	88	-12	

TABLE VII (Continued)

No.	Item	Per Cent "Adjusted" Responses		Diff. of %	T- Ratio
		Poorly Adjusted	Well Adjusted		
18.	In deciding production rates, employers should make considerable allowance for a person's handicap. D				
	W.	26	87	61	3.56
	N.	0	75	75	6.94
19.	No one cares much what happens to you. D				
	W.	70	100	30	3.16
	N.	19	100	81	8.26
20.	It may be dangerous for a blind person to do something alone, but it is better than asking for help. D				
	W.	39	87	48	3.90
	N.	0	63	63	5.20
21.	It is only natural for a blind person to do an awful lot of day dreaming. D				
	W.	48	74	26	1.87
	N.	13	69	56	3.92
22.	It is pretty hard for a blind person to keep a pleasant disposition at home. D				
	W.	35	96	61	3.74
	N.	6	88	82	8.12
23.	With proper training, a blind person can do just about anything a sighted person can do. D				
	W.	21	11	-10	
	N.	0	13	13	1.55

TABLE VII (Continued)

No.	Item	Per Cent "Adjusted" Responses		Diff. of %	T- Ratio
		Poorly Adjusted	Well Adjusted		
24.	Even though you aren't highly skilled, you can do just as well if you really want to. D				
	W.	13	43	30	2.40
	N.	0	6	6	
25.	Life is just a series of disappointments. D				
	W.	61	96	35	2.13
	N.	0	94	94	17.27
26.	Most people who work with the blind are really interested in helping them. A				
	W.	78	91	13	1.24
	N.	100	100	0	
27.	With the progress being made by medical science, there is little doubt that most blindness will be curable in the near future. D				
	W.	22	48	26	1.91
	N.	0	38	38	3.14
28.	One trouble that many blind people have is that they can't trust their families. D				
	W.	43	100	57	5.53
	N.	25	69	44	2.77
29.	Most of the training offered to blind is useless in really helping them with their problems. D				
	W.	52	87	35	2.69
	N.	6	81	75	6.52

TABLE VII (Continued)

No.	Item	Per Cent "Adjusted" Responses		Diff. of %	T- Ratio
		Poorly Adjusted	Well Adjusted		
30.	Employers have a way of expecting a blind person to do things that aren't required of others. D				
	W.	52	100	48	4.63
	N.	6	81	75	6.52
31.	Most people are usually happiest during their childhood. D				
	W.	9	48	39	3.42
	N.	0	44	44	3.75
32.	Most sighted people just pretend they like you. D				
	W.	70	100	30	3.12
	N.	0	81	81	8.26
33.	There are things worse than being blind. A				
	W.	74	91	17	1.12
	N.	100	88	-12	
34.	It's all too true that a blind person's relatives don't like others to know there is a blind person in the family. D				
	W.	26	100	74	8.04
	N.	0	81	81	8.26
35.	A lot of job training offered blind people is just a way of getting them to work for nothing. D				
	W.	52	100	48	4.61
	N.	25	100	75	7.14

TABLE VII (Continued)

No.	Item	Per Cent "Adjusted" Responses			
		Poorly Adjusted	Well Adjusted	Diff. of %	T- Ratio
36.	It is more important for a blind person to have pull than to have ability. D				
	W.	48	100	52	5.00
	N.	0	88	88	10.86
37.	It is great to be liv- ing in these exciting times. A				
	W.	87	91	4	
	N.	100	94	- 6	
38.	Sighted people expect the blind to do things that are impossible. D				
	W.	48	96	48	2.89
	N.	6	88	82	8.12
39.	A blind person shouldn't have to meet the same standards as others. D				
	W.	26	87	61	3.56
	N.	0	81	81	8.26
40.	Some people in the family act as though the blind person is a burden to them. D				
	W.	22	87	65	5.80
	N.	0	56	56	4.52
41.	A training center gives a blind person a chance to learn to be indepen- dent. A				
	W.	87	96	9	
	N.	100	88	-12	

TABLE VII (Continued)

No.	Item	Per Cent "Adjusted" Responses		Diff. of %	T- Ratio
		Poorly Adjusted	Well Adjusted		
42.	Because they have such a tough time getting to work, employers should overlook tardi- ness of blind employees. D				
	W.	43	100	.57	5.53
	N.	0	88	.88	10.86

item showed some discrimination for the Negroes but none for the whites.

Positively-stated items in this study have little value in discriminating between high and low adjustment. Although there are only eight such items in the entire scale, none of these discriminated significantly between the high and low-adjusted groups. These findings regarding the positively-worded items correspond closely to findings reported by other investigators in the field of personality and attitude measurement.

Those who are interested in making a comparison between the original item analysis done in the preliminary study to the analysis made in the standardization study may secure this information by referring to Appendix C where this comparison is presented in table form.

Reliability of judges' ratings. Before turning to the problem of validity of the adjustment scale, it appeared necessary to consider the reliability of judges' ratings which were used as the external criterion. These relevant data are presented in Table VIII, "Correlation between Judges' Ratings on Skill and Adjustment."

The reliability of skill rating ranged from .64 to .75 and on adjustment from .45 to .58. It should be noted that in every case the correlation between judges' ratings on skill was somewhat higher than the correlation between judges' ratings on adjustment. This may have been due to the fact that there was a more objective basis for observing degree of skill than for observing degree of adjustment as defined in this study.

It should be remembered that the three ratings on each trainee were assembled randomly and that, consequently, Judges 1, 2, and 3 did not represent individuals but the composite judgment of many individuals whose ratings were compiled at random.

The three ratings were combined and listed on the table as the average correlation. The average adjustment correlation for the white group was .52; for skill .72. The average correlation for adjustment for the Negro group was .49; for skill .67. In both categories the average correlation for skill was higher than for adjustment. It should be noted also that the average correlation for both

skill and adjustment were slightly lower for the Negro sample than the white sample.

TABLE VIII
CORRELATION BETWEEN JUDGES' RATINGS ON
SKILL AND ADJUSTMENT

Variables	White			Negro		
	N	Skill Ratings	Adjustment Ratings	N	Skill Ratings	Adjustment Ratings
Judges 1 and 2	86	.67	.47	63	.64	.53
Judges 1 and 3	66	.74	.51	53	.67	.49
Judges 2 and 3	66	.75	.58	53	.70	.45
Average Correlation		.72	.52		.67	.49

Relationship between adjustment and skill rating. A further analysis was made to determine the relationship between adjustment rating and skill rating. It was reasonable to assume that a high correlation between adjustment and skill ratings would mean that judges were not discriminating to any degree between skill and adjustment, due, perhaps, to a strong "halo" effect. A judge, under usual circumstances, would have at least some knowledge of the client's ability in functional skills, and, this in turn, could influence his rating of the client's adjustment.

In this comparison, the average of three ratings provided by the judges was obtained. For the Negro sample the correlation between the judges' ratings on adjustment

to judges' ratings on skill was .84. For the white sample the correlation was .89. It would appear, therefore, that the judges did not discriminate to any great extent between adjustment and skill in rating clients. Apparently the judges were being global rather than analytical in their ratings. On the basis of these findings, it was anticipated that the validity coefficient between adjustment scale scores and adjustment ratings would be approximately the same as correlations between adjustment scale scores and skill ratings. This problem was therefore considered.

Validity of the adjustment scale. As previously indicated, the external criterion used in determining the validity of the adjustment scale was the average rating in adjustment and skill by instructors working with blind subjects in adjustment training centers. As reported in the previous section on reliability study, there was only a moderate degree of consistency among judges' ratings. Under the circumstances, it was unlikely that a high validity correlation could be anticipated. With the ninety-two white subjects the coefficient of correlation between adjustment score and average adjustment rating was .34 with average skill rating.22. The same comparison with the sixty-three Negro subjects yielded a correlation of .22 with adjustment and .19 with skill. Comparing these results to the analysis of previous data, it was found that the Saginaw sample yielded a correlation of .36, or somewhat higher than the present validity.

In view of the fact that the reliability of judges' ratings were rather low, it was necessary to correct for attenuation the validity coefficients obtained. The question was asked "What is the estimated validity of the present test, assuming that the external criterion is perfectly reliable?" According to Guilford [23] such an estimated validity is a better approximation of the true validity than the obtained validity. The formula given by Guilford to correct for such attenuation is as follows:

$$r_x = \frac{r_{xy}}{\sqrt{r_{yy}}}$$

In computing r_x the r_{xy} equals the obtained validity coefficient, and r_{yy} the correlation between the judges' ratings. The mean of the three available uncorrected correlations between judges' ratings in both adjustment and skill was used. (See Table VIII for correlation between judges' ratings.) The corrected validity correlation of adjustment scores for the white sample with adjustment ratings was .47; for skill ratings .26. For the Negro sample the corrected validity for adjustment was .31; for skill .23. In view of the fact that the correlations between judges' ratings were moderately high in the skill field, there was little difference between the corrected and uncorrected validity correlations. However, the correlations between judges' ratings in adjustment were somewhat lower; therefore, the corrected validity correlations

were increased to a greater extent than the skill correlations.

Further analysis of the validity of the adjustment scale was made by comparing the adjustment score on the six sub-scales to ratings by instructors in skill and adjustment. This comparison is presented in Table IX. In analyzing this information it was noted that all correlations between the sub-scale scores for adjustment and judges' ratings on skill and adjustment were relatively low. In comparing the mean of the six correlations, it was noted that correlations were somewhat higher for adjustment than for skill. Correlations are also somewhat greater for the whites than for the Negroes. It was concluded that the correlations between sub-scale scores and judges' ratings were relatively insignificant. The adjustment score apparently was more valid when considered in its entirety rather than on the basis of its component parts.

While the corrected validities presented previously indicated that the adjustment scale was moderately valid, the hypothesis was considered that its validity would be higher if there was some assurance that the subjects rated were relatively well known by the judges who rated them. Accordingly, the trainees were divided into two groups; those who had been in the centers for a shorter period of time (from one to eleven weeks) and those who had been in the centers for a relatively longer period of time (eleven

to forty-eight weeks). If the hypothesis were correct, a higher correlation could be expected for the latter group.

TABLE IX
CORRELATION OF ADJUSTMENT SCORE ON SUB-SCALES
TO JUDGES' RATINGS ON SKILL AND ADJUSTMENT

Sub-Scale	White		Negro	
	N = 92		N = 63	
	Skill	Adjustment	Skill	Adjustment
"M" (Morale)	.03	.12	.24	.26
"S" (Sighted)	.25	.26	.26	.25
"B" (Blindness)	.18	.21	.05	.15
"F" (Family)	.22	.22	.06	.07
"T" (Training)	.23	.25	.17	.19
"O" (Occupational)	.07	.05	.12	.15
Mean of Correlations	.165	.185	.150	.178

In the white sample with shorter term training the correlation between adjustment scores and adjustment ratings was .40; between adjustment scores and skill ratings .38. With the longer term group the correlation between adjustment scores and adjustment rating was .27; with skill rating .32. Instead of an increase, therefore, a decrease was obtained in the correlations between adjustment score and adjustment ratings between the shorter term and longer term groups. In the comparison between adjustment score and skill ratings there is very little difference between the two groups.

The comparison with the Negro sample yielded the anticipated results. Here the correlation between adjustment scores and judges' ratings in adjustment in the shorter term group was .21; the correlation between adjustment score and judges' ratings in skill .13. In the longer term group the correlation between adjustment scores and judges' ratings in adjustment was .39; between adjustment scores and judges' ratings in skill .41. This indicated considerable increase, especially between adjustment score and skill rating, and a moderate increase between adjustment scores and adjustment ratings, which would tend to verify the hypothesis. In an effort to analyze the reason why the data on the Negro sample yielded the results anticipated while the data on the white sample did not, one difference was noted between these two groups. In the case of the data on Negroes for the well-trained group, all of the individuals came from one center; namely, North Carolina. In the white sample the group selected as well-trained represented a number of centers. Therefore, a factor to be considered in computing validity was that an increase in the number of judgments from different centers tended to decrease the validity. Therefore, if the analysis were restricted to one center only, where few judges were involved, the validity should be higher. To test this hypothesis, the validity coefficients were computed for the North Carolina sample alone, where twenty-one white and twenty-six Negro trainees were tested. The results are shown in Table X.

TABLE X

CORRELATION OF ADJUSTMENT SCORE WITH THE AVERAGE RATINGS IN THE NORTH CAROLINA SAMPLE¹

		White (N = 21)			Negro (N = 26)		
		Adjustment Rating		Skill Rating	Adjustment Rating		Skill Rating
	r	Mean	S.D.	r	Mean	S.D.	r
Adjustment score with average adjustment rating	.57	20.29	2.90		.40	16.65	2.51
Adjustment score with average skill rating				.59	20.86	3.56	.41
Corrected for attenuation	.79			.66	.64		.49

¹Level of significance:

White (N-21)	1%	5%
Negro (N-26)	.526 .478	.413 .374

The correlation between adjustment score and adjustment rating was .57 for the white group and .40 for the Negro group. The correlation between adjustment score and skill rating was .59 for the white group and .41 for the Negro group. The uncorrected correlations between judges' ratings in the North Carolina sample which appear in Table XI, when corrected for attenuation, yielded validity correlation between adjustment score and adjustment rating of .79 for whites and .64 for Negroes. With similar correction between adjustment score and skill rating, the validity correlation for the white group was .66 and for the Negro group .49. These validity correlations are surprisingly high for the whites and moderately so for the Negroes. These afford the best estimate presented in the study of the validity of the adjustment scale.

TABLE XI

CORRELATION OF JUDGES' RATINGS--NORTH CAROLINA SAMPLE

Variables	White (N = 21)		Negro (N = 26)	
	ADJUSTMENT	SKILL	ADJUSTMENT	SKILL
Judges 1 and 2	.26	.69	.53	.61
Judges 2 and 3	.85	.91	.20	.74
Judges 1 and 3	.45	.83	.44	.77
Average of correlations	.52	.81	.39	.71

Unfortunately, the number of cases obtained from centers other than North Carolina were too small to warrant similar analysis. Further research at a single center where there are relatively large numbers of subjects, employing the same judges, would be well worth while.

Adjustment in relation to sociological factors. In comparing the mean adjustment score of various categories in the sociological data, a number were found to be statistically significant. These differences are reported in Table XII, "Comparison of Sociological Data," in which the N, the Mean, the S. D. and the t-ratio are provided. This table provides a comparative study for both white and Negro samples. Where the numbers were comparatively small, they were combined to provide a comparison which was more adequate. This is reported under the section "Total Sample."

One comparison not reported in this table may be of interest; namely, the mean adjustment score between the white and Negro sample. The white sample provided 92 cases with a mean adjustment score of 28.36 while the Negro sample, with 63 cases, provided a mean adjustment score of 19.27. The standard deviation for the white sample was 6.32; for the Negro sample 8.13; the t-ratio 7.62, which is significant far beyond the one per cent level of confidence.

In analyzing the data on marital status, the information was combined to include all individuals who were either married or had been married and compared their mean

TABLE XII

COMPARISON OF SOCIOLOGICAL DATA

Variables	White			Negro			Total Sample					
	T			T			T					
	N	Mean	S.D.	Ratio	N	Mean	S.D.	Ratio	N	Mean	S.D.	Ratio
<u>Marital Status</u>												
Single	54	27.92	8.53		28	21.50	8.14		82	26.11	7.29	
Married or were married	37	28.13	6.40	N.S.*	35	17.48	7.78	1.98	72	22.95	8.88	2.39
<u>Age at Onset of Blindness</u>												
Under 20	51	29.02	6.13		26	22.23	7.77					
Over 20	38	27.68	8.64	N.S.	36	16.75	6.75	2.88				
<u>Attended School for</u>												
Blind												
Yes	35	30.26	4.43		12	24.92	7.17		47	28.89	5.79	
No	53	27.44	7.12	2.31	44	18.36	7.83	2.76	98	23.37	8.67	4.52
<u>Amount of Education</u>												
Elementary	14	28.79	5.84		33	16.06	6.79		47	19.85	9.89	
Secondary	47	29.10	6.45	N.S.	21	25.14	2.66	5.22	68	27.59	7.09	4.59
<u>Type of Community</u>												
Rural	25	30.24	5.39		21	20.57	7.31					
Towns and cities	52	27.40	6.76	1.98	28	19.96	8.59	N.S.				

TABLE XII (Continued)

Variables	White				Negro				Total Sample			
	N	Mean	S.D.	Ratio	N	Mean	S.D.	Ratio	N	Mean	S.D.	Ratio
<u>Work Experience</u>												
Yes	34	30.56	4.75		13	19.92	5.58		47	27.62	6.89	
No	57	27.00	6.79	2.94	49	19.27	8.10	N.S.	106	23.41	9.95	3.03
<u>Other Blind in Family</u>												
Yes	12	25.83	8.16		14	16.57	6.36		26	20.85	8.63	
No	78	28.69	5.98	1.17	46	20.00	8.44	1.59	124	25.47	8.21	2.54

*Not significant

adjustment score to that of single individuals. In the white sample the difference was not statistically significant; however, in the Negro sample there was a greater difference, although it did not reach the five per cent level, the t-ratio being 1.98. In combining these two categories, there was a more adequate number which provided a t-ratio of 2.39. From this information it was concluded that single individuals achieved a better adjustment score than individuals who were or had been married.

In comparing the data on the age of individuals at onset of blindness, it was found that the greatest difference existed between those who had been blind prior to twenty years of age as compared to those who became blind after that age. The mean adjustment score was greater for those who became blind in their childhood or youth in both categories. However, the difference in the white sample was not sufficiently great to be significant. In the Negro sample the difference was greater, with a t-ratio of 2.88, which was significant beyond the one per cent level of confidence.

The only comparison in which the difference was statistically significant in both categories was in comparing individuals who had attended schools for blind with those who had not. In both categories those individuals who had attended a school for blind achieved a higher adjustment score than those who had not. The greatest difference was in the Negro sample where the t-ratio was 2.76 compared to

the t-ratio of 2.31 for the white sample. When the categories were combined, as might be anticipated, the t-ratio of 4.52 was higher and was beyond the one per cent level of significance. On the basis of this evidence it was concluded that individuals who had the opportunity to attend schools for blind were able to achieve a higher adjustment score compared to individuals who did not have such opportunity. The educative process appears to have contributed in some way to the individual's ability to make a better adjustment. This conclusion should be especially significant in considering the purpose of adjustment training. If attendance at schools for blind as children permitted adult individuals to achieve higher adjustment scores, then it would seem that comparable training for blind adults in adjustment centers should also permit individuals to achieve a higher level of adjustment than those who do not attend such centers.

When analyzing the data on mean adjustment scores in relation to years of training, it appeared advantageous to compare those who had completed six years of training, or elementary school program, against those who had completed junior and senior high school, or twelve years of training. With the white sample it was found that this comparison was not statistically significant; however, in the Negro sample, even though the number was extremely small, a t-ratio of 2.76 was obtained. Combining the two categories and, thus,

providing a more adequate number, a t-ratio of 4.59 was obtained which was almost identical to the t-ratio of the combined sample in comparing those who had attended a school for blind to those who had not. Apparently, therefore, there was a high degree of relationship between the individual's ability to achieve a high adjustment score and his opportunity for satisfactory educational experiences. It appeared that the more favorable the educational experience, the better is the individual's opportunity to achieve a desirable level of adjustment.

The mean adjustment score for individuals from rural areas was somewhat higher than those from towns and cities. The greatest difference was found in the white sample, where a t-ratio of 1.98 was obtained, which was slightly below the five per cent level of significance. The comparison with the Negro sample yielded results which were not significant. On the basis of this information, therefore, there was little difference between the level of adjustment in comparing individuals from different types of communities.

Comparison on the basis of work experience, indicated that those who had such experience achieved a higher adjustment score. In the white sample the t-ratio was reported as 2.94, or slightly beyond the one per cent level of confidence. The number in the Negro sample was so small for those with work experience that it did not permit adequate

analysis. However, when the categories are combined to provide an adequate number, we found the t-ratio to be 3.03, which was beyond the one per cent level of significance. This permitted the conclusion that individuals who had work experience, achieved a better adjustment score.

In a comparison of the mean adjustment score between individuals from homes in which there were other blind members to those from homes in which there were none, it was found the latter achieved a somewhat higher score. In computing the difference in the white and Negro samples separately, the number in each case was so small that it was not possible to make an adequate comparison. However, when the categories were combined, a t-ratio of 2.54 was obtained, which would indicate that individuals from homes in which there were no other blind members achieved higher adjustment scores.

In conclusion, therefore, it can be stated that the most significant difference in comparing various data was that related to educational experience. Although the present study indicates that there is a significant degree of relationship between the level of adjustment and amount of educational experience, this is not necessarily an indication of causal relationship. There are possibly other contributing circumstances which could account for this relationship. One task for further research was to investigate how

these variables were related to or are determinants of adjustment. Further analysis of available data was undertaken in an attempt to gain a better understanding of this relationship.

CHAPTER V

RELATIONSHIP OF EDUCATIONAL EXPERIENCE TO ADJUSTMENT TO BLINDNESS

PART I

The highest t-ratio found in Table XII was that obtained when comparing information related to educational experience. Therefore further analysis was made of this area.

The first comparison of data was on the basis of extent of educational experience. Here individuals who participated only in elementary educational programs were compared to those who participated in secondary education. The total comparison is presented in Table XIII. In the white section of the population approximately forty per cent had elementary educational experience while sixty per cent had secondary experience. This was reversed for the Negro section of the sample, where it was found that eighty per cent had elementary and twenty per cent had secondary experience. For the group as a whole, therefore, the distribution was uneven in that about sixty-four per cent had elementary educational experience and thirty-four per cent secondary experience. This provided an additional clue as to why the Negro section of the population did not obtain as high adjustment scores as the white section of the

TABLE XIII
COMPARISON ON BASIS OF EDUCATIONAL EXPERIENCE

Variables	N = 129 . Distribution for Total Blind Population in %			Elementary Experience in %	Secondary Experience in %
<u>Race</u>					
White	59			40	60
Negro	41			80	20
<u>Sex</u>					
Male	64			61	39
Female	36			48	52
<u>Weeks of Training in Adjustment Center</u>					
4 weeks or less	72			58	42
More than 4 weeks	28			53	47
<u>Marital Status</u>					
Single	53			45	55
Married	47			70	30
<u>Age at Onset of Blindness</u>					
0 - 19	50			42	58
20 and over	50			71	29
<u>Number of Years Blind</u>					
0 - 9	40			62	38
10 or more	60			53	47
<u>Visual Acuity</u>					
L. P. or less	59			54	46
More than L. P.	41			60	40
<u>Attendance at School for Blind</u>					
Yes	33			37	63
No	67			64	36
<u>Type of Community</u>					
Rural and small town	41			64	36
Urban	59			53	47

TABLE XIII (Continued)

Variables	N = 129		
	Distribution for Total Blind Population in %	Elementary Experience in %	Secondary Experience in %
<u>Work Experience</u>			
Yes	30	36	64
No	70	66	34
<u>Other Blind in Family</u>			
Yes	15	74	26
No	85	52	48

population. As a much higher percent of the Negro population had only elementary school experience, then obviously these individuals would score lower than the white group if there is a positive relationship between adjustment scores and educational experience.

If the present so-called adjustment centers were accomplishing the purpose for which they were established, namely, bringing about a higher level of adjustment, than it might be assumed that those individuals who had been trained for a longer period of time when compared to those who had been trained for a shorter period, the former should have a better adjustment score. Previous evaluation of data in a single center, namely, North Carolina, indicated that there was a positive relationship between length of training and adjustment scores. This comparison was then considered in relation to those individuals having participated in

elementary education against those having secondary experience. These data were accumulated early in 1952, and little difference was noted in comparing elementary-trained groups to secondary-trained groups in relation to the weeks of training at the adjustment center. The distribution was almost identical. In the elementary-trained group it was found that fifty-eight per cent had been trained for four weeks or less while in the secondary group forty-two per cent had been in training four weeks or less. It was noted that the majority of the entire population in training had been in training less than four weeks, representing seventy-two per cent of the group. Predominantly, therefore, the group under study had been in adjustment centers for only a relatively short period of time, and, therefore, adjustment scores were not influenced to any extent by training provided in these centers. Further, when the relationship to the extent of educational experience was considered, apparently there was no significant difference.

As indicated in Table XII, the marital status of individuals appeared to affect adjustment scores with the higher score achieved by blind individuals who were single as compared to those who were married or had been married. The distribution for the total population was almost even with fifty-three per cent reported as single and forty-seven per cent reported as married. It was found that the distribution was about equal for single individuals when

comparing those having elementary educational experience against those having secondary experience. It was noted that forty-five per cent of those who were single had elementary experience while fifty-five per cent had secondary experience. In the married group, seventy per cent had elementary experience and thirty per cent secondary experience. There appeared to be an adverse relationship in the group classified as married as the number of individuals was more than twice as great for those with elementary experience when compared to those having secondary experience. However, it was possible that there were other circumstances to be considered here which were not revealed by these figures alone. The original data indicated that there was a significant relationship between marital status and adjustment scores, with single individuals in a more favorable position. Although there was little difference in the distribution of single individuals between elementary and secondary training, there was a very significant difference in the comparison of married individuals in relation to educational experience. The latter group appeared to have had a less-favorable educational experience, which further substantiates the hypothesis that there was a positive relationship between educational experience and adjustment scores.

Some further light was thrown on this investigation when the factor of age at onset of blindness was considered.

Here the group which became blind under the age of twenty; i. e., childhood or youth, was compared to that which became blind during maturity; i. e., twenty or over, in relation to the extent of educational experience. Considering the distribution on the basis of age at onset of blindness, it was found that fifty per cent of the total population became blind prior to twenty years of age while fifty per cent became blind after twenty years of age. Breaking down the group on the basis of educational experience for those blind before twenty, it was found that there was a fairly equal distribution, as forty-two per cent had elementary experience and fifty-eight per cent secondary. The tendency was reversed in the group becoming blind at an older age with seventy per cent having had elementary experience and thirty per cent secondary experience. In other words, in cases where people became blind in childhood or youth, there was a tendency for them to receive a greater amount of education when compared to those who became blind past twenty years of age. The latter probably more nearly represented a cross-section of the normal population. Educational opportunities appeared to be more favorable to children blinded early in life than for the population in general. This apparently strengthens the previous conclusions that adjustment scores were positively related to favorable educational experience.

The number of years that an individual has been blind may have a relationship to educational experience.

The facts were considered as revealed by the data at hand. It was found that forty per cent of the group were blind less than ten years while sixty per cent of the group were blind more than ten years. The population at adjustment centers, therefore, was predominantly made up of individuals who were blind for an extended period of time. In considering these data in relation to educational experience, it was noted that, of the individuals blind less than ten years, sixty-two per cent were elementary-trained and thirty-eight per cent secondary. In the group blind more than ten years, fifty-three per cent received elementary training and forty-seven per cent secondary. The greatest difference in this comparison was in that part of the population which had been blind for the shortest period of time. In this group were probably found individuals who were blinded in adulthood while in the former group were probably found more individuals who had been blind since birth or early childhood. Therefore, the group blind less than ten years more typically represented a cross-section of the general population. There was a significant difference in this comparison with individuals blind less than ten years as approximately two-thirds of this group had only elementary experience. Previous studies had also indicated that newly-blinded people are inclined to be less well-adjusted. However, the population under study represents a cross-section of individuals who had made some kind of initial adjustment.

A comparison of the population under study on the basis of visual acuity was also considered. It was found that fifty-nine per cent of the group had less than light perception while forty-one per cent had more than this amount of vision. This, of course, is not a typical blind population but is, rather, representative of the type of clientele which are frequently routed to adjustment centers. In considering relationship to educational experience it was found that, in the population having light perception or less, fifty-four per cent had elementary educational experience while forty-six per cent had secondary experience. In the population having more than light perception, sixty per cent had elementary experience and forty per cent more than this amount of educational experience. Here, too, there did not appear to be any significant difference in relationship to educational opportunity. Apparently, therefore, it was concluded that there was little difference when considering degree of visual acuity in comparison to the extent of educational opportunity.

It was anticipated that there would be a high degree of relationship between educational experience when compared to attendance at schools for blind. It was found that in the total group one-third of the population attended schools for blind and two-thirds did not. Among those who attended schools for blind, thirty-seven per cent had elementary experience and sixty-three per cent secondary experience. In that part of the population which did not attend a special

school, sixty-four per cent had elementary and thirty-six per cent had secondary experience. The relationship, therefore, appeared to be exactly opposite. In the special school group about one-third had elementary experience and two-thirds secondary. In the group having ordinary public school experience, about two-thirds had elementary and one-third secondary experience. This appeared to be a highly significant factor in analyzing the reason why graduates from schools for blind achieved higher adjustment scores. A much higher per cent of those attending schools for blind had an opportunity to secure secondary school experience and for this reason, their scores were apparently higher. This provides further evidence of the relationship of high adjustment scores to favorable educational experience.

There was an additional factor when comparing the data between Negroes and whites. Here it was noted that approximately forty-three per cent of the white students had an opportunity to attend schools for blind while only twenty-one per cent of the Negro group had such opportunity. This appeared to provide further justification for the viewpoint that the Negro population scored less favorably because of the deprivation of educational opportunity.

Considering the type of community from which the clientele came in relation to educational experience, it was noted that forty-one per cent were from small towns and rural areas and fifty-nine per cent from communities larger than five thousand, or about one-half from the more rural

areas while the other half was from the more urban areas. When combining those from small towns and rural areas, it was found that approximately two-thirds had elementary experience while one-third had educational experience on the secondary level. In the group from the more urban area it was found that educational opportunity was somewhat more advantageous with slightly more than half, or fifty-three per cent, having elementary experience in forty-seven per cent secondary experience. As educational opportunities appeared to be more favorable in urban areas, then it might be anticipated that adjustment scores would be higher for this group. In looking at the original data it was noted that in the white population there was a limited degree of significance in favor of individuals from the rural areas. However, in the total comparison the difference was so slight that it could not be considered significant. It was entirely possible, however, that if the same population had been larger, different results might have been obtained. There may be some factors other than educational experience which affected adjustment scores which accounted for the higher scores that individuals from the rural areas secured even though as a group their educational opportunities were less favorable.

Work experience and educational opportunity were also compared. It was found that thirty per cent of the group had work experience while seventy per cent did not. Of those who had work experience, about one-third,

thirty-six per cent, had elementary experience, and two-thirds had secondary experience. Compared to the group who had no work experience, it was found that the proportion was reversed with two-thirds having elementary training and one-third secondary training. There appeared to be a positive relationship between work experience and educational opportunity with those individuals having more favorable educational opportunity experiencing some advantage in employment. This appeared to substantiate previous findings that individuals with more favorable educational opportunities appeared to make a better adjustment to blindness.

There apparently was some relationship when comparing individuals from families in which there were other blind members to those without others blind in relation to educational experience. Of the entire group fifteen per cent reported other members of the family to be blind. Of those individuals who reported that there were other blind members in the family, seventy-four per cent had elementary educational experience only. Of those who reported no other blind members in their family, fifty-two per cent participated in education on an elementary level only. It was noted in Table XIII that there was a significant degree of difference with a more favorable adjustment score for individuals from families in which there were no other blind members. In comparing this to educational experience, it was found the latter also had more favorable educational

experience when compared to individuals from homes in which there were other blind members.

In an attempt to accumulate further information on the relationship of educational experience to adjustment to blindness, an analysis of various factors was made on the basis of attendance at a school for blind in comparison to those who had no such experience. These data are presented in Table XIV and are analyzed in the next section of this study.

PART II

This provides an analysis of various factors as they relate to individuals who attended special schools for blind compared to those who did not. As in the previous comparison on the basis of extent of educational experience, the division of data under the first column was the same except for Item 2. (See Table XIV.)

Considering the amount of training, there was no relationship to attendance at a special school in view of the fact that the data was collected on cases in training at the time this study was in progress and any such relationship would have been coincidental.

The comparison on marital status in relation to attendance at a school for blind provides some relative information. The population was quite evenly divided between married and single. The former group included people

TABLE XIV

COMPARISON ON BASIS OF ATTENDANCE AT A SCHOOL FOR BLIND

Variables	N = 147 Distribution for Total Blind Population in %	Attended a School for Blind in %	Did Not Attend a School for Blind in %
<u>Sex</u>			
Male	64	27	73
Female	36	44	56
<u>Weeks of Training</u>			
12 weeks or less	59	30	70
More than 12 weeks	41	48	52
<u>Marital Status</u>			
Single	53	46	54
Married	47	15	85
<u>Age at Onset of Blindness</u>			
0 - 19	50	55	45
20 and over	50	7	93
<u>Number of Years Blind</u>			
0 - 9	40	14	86
10 or more	60	42	58
<u>Visual Acuity</u>			
L. P. or less	59	32	68
More than L. P.	41	34	66
<u>Type of Community</u>			
Rural and small town	41	36	64
Urban	59	30	70
<u>Work Experience</u>			
Yes	30	40	60
No	70	27	73
<u>Other Blind in Family</u>			
Yes	15	17	83
No	85	14	86

who were married or had been married. More specifically, it was found that fifty-three per cent of the total population were single. The remainder, forty-seven per cent, either were or had been married. However, the distribution on the basis of attendance at schools for blind was not comparable. In analyzing the data in relation to those who had attended special schools, it was found that for the single members approximately forty-six per cent had attended special schools, and fifty-four per cent had not. In the group who were or had been married, it was found that fifteen per cent had attended special schools while eighty-five per cent had not. The latter probably more typically represents the general population while the former represents that section of the blind population which included more people who had been blind for a long period of time and, therefore, more frequently had opportunities to attend special schools. This factor was verified in a follow-up study in Michigan [20] on students from the school for blind over an eight-year period, where it was also found that a very high percentage of students were unmarried, even after they had been out of school for as long as eight years. This throws some further light on the reason why, in comparing data on marriage experience in relation to adjustment scores, that the single members of the population obtained somewhat higher adjustment scores. This substantiates the viewpoint that school for blind graduates attained a

higher adjustment score as the result of training rather than the result of marital experience..

Considering the relationship to age at onset of blindness, the data were divided and compared with those who became blind from birth to nineteen years against those who became blind at twenty or after. It was found that they were equally divided with fifty per cent in each group. Of those becoming blind before twenty years of age, fifty-five per cent attended schools for blind while forty-five per cent did not. Of those becoming blind at twenty or after, only seventeen per cent attended such special schools while eighty-three per cent did not. Those individuals becoming blind before twenty had a better than average chance of attending special schools while those becoming blind after twenty rarely had this opportunity. The educational opportunity of the latter would be directly related to the availability of opportunities to the population in general. The difference between the two groups is highly significant in considering the influence of special educational experience on adjustment to blindness.

In the analysis of the relationship of educational experience to the number of years the individual had been blind, the group was divided into those who had been blind nine years or less and compared to those who had been blind for more than nine years. Forty per cent of the total population of this study fell into the first group and sixty

per cent into the latter. However, it was found that, of the former, those being blind nine years or less, fourteen per cent attended schools for blind while eighty-six per cent did not. Of those who were blind ten years or more, the distribution indicated that forty-two per cent attended special schools, and fifty-eight per cent did not. The only significant difference in this comparison was in the data presented on the population blind less than ten years. This again appears to represent those who became blind in adulthood who did not have comparable educational opportunities. It was noted that this comparison was closely related to that in the previous paragraph and, thus, permits a comparable conclusion.

In comparing the relationship of attendance at special schools to types of communities from which individuals came the data were combined for those from rural areas and small towns. It was found that forty-one per cent of the population in this study came from these types of communities while fifty-nine per cent came from more populous communities. Of the group which came from smaller communities, thirty-six per cent attended schools for blind while sixty-four per cent did not. Of those who came from larger communities, thirty per cent attended schools for blind while seventy per cent did not. Although a greater per cent of blind people resided in the more urban communities, a smaller per cent of those in these communities attended the special schools for blind compared to those from the more

rural areas. This may be explained by the fact that frequently larger communities provided special rooms or facilities for visually-handicapped people which are not actually classified as schools for blind while the more rural communities find it necessary to utilize the facilities of the state residential school to a greater degree. The distribution, however, was so similar that there was little difference in comparing these data.

When considering the factor of work experience, it was found that thirty per cent had such experience while seventy per cent did not. Of the thirty per cent which had work experience, forty per cent attended a special school for blind while sixty per cent did not. Of those who had no work experience, twenty-seven per cent attended the special schools while seventy-three per cent did not. This indicated, therefore, that those individuals who attended schools for blind appeared to have had somewhat of an occupational advantage. The ratio between those having attended the special school compared to those who did not is much higher for those who had work experience. This provides further significant data to substantiate the hypothesis originally presented.

The last factor to be considered was the effect of having other blind members in the family and how this related to attendance at schools for blind. It was found that, of the total population, fifteen per cent reported that there were other members of the family blind while

eighty-five per cent reported that there were no other blind people in the family. Of those who came from families in which there were other blind people, only seventeen per cent attended schools for blind while eighty-three per cent did not. Of those who came from families in which there were no other blind people, fourteen per cent attended schools for blind while eighty-six per cent did not. The comparison was almost identical, and apparently, therefore, there was little relationship of attendance of a special school to the factor as to whether or not there were other blind people in the client's family. The difference was so slight that it was insignificant.

On an over-all basis the analysis of these data appeared to support the hypothesis that there was a direct relationship between educational experience and adjustment to blindness, further, that there apparently was a relationship between opportunity for attending a school for blind and adjustment to the disability of blindness as measured by the instruments developed in this study. The fact that the analysis of these data showed no contradiction to this conclusion strengthened the original supposition and further justified this viewpoint. The comparisons made of the various data were essentially favorable in that they presented relevant factors indicating a positive relationship of adjustment to educational experience.

Many of the conclusions which are drawn here as the result of the analysis of data in the study on adjustment to

blindness were verified by the follow-up study of students from the Michigan School for the Blind over an eight-year period [20]. However, in the latter study there were no comparisons with the general blind population. Although it was somewhat startling in this study [20] to find the low percentage of people who had experienced occupational success, it appeared to be even less favorable with the group analyzed in adjustment training centers. It should be pointed out, however, that with the data gathered in this study, none of the people were in employment, but all were in adjustment training with the goal of making them more employable.

In this study of adjustment the evaluation is primarily concerned with the attitudes of the individual in relation to problems of blindness. Therefore, it may be presumed that there is a direct relationship between favorable educational experience and desirable attitudes toward problems of blindness. This conclusion does not agree entirely with that made by Bauman [6]. In this report the following statement is found:

Life in schools for blind is sometimes thought so to shape the attitudes of students that they have a different philosophy of life than others. Some attempt was made to check upon this by analyzing responses to questions about self-support, travel, group activities, religion, etc. Differences in attitude between those who did and those who did not attend schools for blind was rarely great, but in most cases it would be necessary to investigate the possible effect of other factors before we could be sure how much difference was related to school background.

It might be concluded from the statement presented that there was some doubt as to whether or not the original supposition was conclusive. Possibly, if further analysis had been made, the conclusions presented by Bauman might have been in agreement with the conclusions of this study. The sample population used by Bauman, however, was quite different from the sample population of this study. Further, the definition of adjustment was entirely different in that it was equated with occupational success. For this reason, it was not possible to make a true comparison between the findings presented by Bauman and those presented in this study.

On the basis of the evidence provided by this data, it may be concluded with a degree of assurance that there was a positive relationship between the extent of favorable educational experience and adequacy of adjustment to blindness. Further, this provided scientific evidence to verify the hypothesis that behavior can be modified by controlling experience in the social-cultural environment. Both the extent of educational experience and the degree to which such experience was favorable appeared to reflect as a factor in the modification of behavior patterns as measured with the instrument developed in this study.

CHAPTER VI

NORTH CAROLINA FOLLOW-UP STUDY

Procedure

In the fall of 1954 arrangements were made through the cooperation of Mr. H. A. Wood, Executive Secretary of North Carolina Commission for the Blind, to do a follow-up study with those cases in North Carolina which were in adjustment training in 1952, when the initial data were compiled. The purpose of the follow-up study was to determine what changes had occurred in the individuals after a reasonable length of time away from the adjustment center. If the purposes for which the individual had been sent to the center were achieved, then it was anticipated that adjustment scores obtained from such individuals would be higher than they were at the time the service was in progress. The second purpose of the study was to evaluate further the measuring instrument itself in a practical application. If the training which was provided achieved the desired results of better adjustment, the instrument, in turn, should reflect this change in a valid manner.

The method of administering the instrument in the follow-up study was different than that used in securing the initial data. Initially the data were collected in a more or less controlled or clinical situation, while in the

follow-up study it was obtained by the regular counseling staff making calls in the home or work situations. Instead of having a single person administering the tests, the entire North Carolina rehabilitation counseling staff participated in collecting the follow-up data. Furthermore, instead of using the cards and trays as was initially done to permit individuals to respond without verbalizing opinions, the counselor in the follow-up study read the statement and requested verbal responses. It might be anticipated, therefore, that the reliability of data in the follow-up study would not be as high as it was in the more controlled situation of the original study.

To permit a study of validity, the counselor was requested to rate each individual client on whom follow-up data were collected with the same rating sheet which was used in the initial study. However, in the original study the average rating of three judges was used, while in the follow-up study only a single rating on each client was obtained. Considering the nature of rehabilitation service, it might be assumed that the counselor would know each client quite well as a number of years had passed since the original contact had been made. If clients were better known in the follow-up study than they were while in adjustment training, it might be anticipated that a higher degree of correlation would be obtained between adjustment scores and ratings than was true in the original study.

In the initial study forty-seven clients were tested in the North Carolina adjustment center. However, at the time of the follow-up study, only thirty-eight of the original forty-seven clients were still available on whom the follow-up study could be made. The original study included twenty-one white and twenty-six Negro cases. The follow-up study included seventeen white and twenty-one Negro cases. The proportion, therefore, was somewhat different. The detailed data showing the comparison between 1952 and 1954 are recorded in Table XV.

Analysis of Data

In the original study, considerable difference was found between the scores of white and Negro trainees.* It is of interest to note that in the follow-up study this situation seems to have changed. The average adjustment score for the seventeen white individuals in the follow-up study was 35.59. The average adjustment score for the twenty-one Negro clients was 33.19. This difference is statistically insignificant with a t-score of .95. Although it would be interesting to conjecture why scores differed so little in the follow-up study, as no relevant data is available to explain this situation, it can only be conjectured why this fact was encountered. As there was no significant difference between the scores of these two groups, the data in the follow-up study were treated as a unit.

*Note: Average scores for various categories on p. 59.

TABLE XV

1954 DATA ON NORTH CAROLINA FOLLOW-UP STUDY--PART 1, WHITES N=17

Client No.	Sex	I. Q.	Employed	Adjustment Scores		Adjustment Rating		Skill Rating	
				1952	1954	1952	1954	1952	1954
1	M	117	yes	30	35	17	17	21	14
2	F	99	yes	35	35	23	16	23	17
3	M	-	yes	25	10	20	7	15	12
4	M	75	no	14	41	22	17	21	12
5	M	67	yes	29	37	21	20	22	18
6	M	99	no	29	36	21	12	22	14
7	M	99	yes	34	41	22	29	23	29
8	F	75	yes	32	38	21	24	24	24
9	M	86	yes	31	40	22	22	22	18
10	F	105	yes	36	40	26	21	23	21
11	M	-	yes	29	29	17	16	17	20
12	F	83	yes	32	35	20	22	20	18
13	F	-	yes	26	37	21	14	21	11
14	M	66	yes	29	36	21	14	22	18
15	M	104	yes	32	37	21	19	20	19
16	M	112	yes	31	39	19	17	20	12
17	M	100	College	37	39	23	23	24	24
Means		92		30.06	35.59	21.00	18.24	21.18	17.71

TABLE XV (Continued)

PART 2, NEGROES N = 21

Client No.	Sex	I. Q.	Employed	Adjustment Scores		Adjustment Rating		Skill Rating	
				1952	1954	1952	1954	1952	1954
1	F	90	yes	29	38	17	15	17	13
2	M	126	College	30	37	23	21	20	20
3	F	97	yes	25	39	18	16	17	14
4	F	-	no	9	30	15	13	12	12
5	M	-	no	14	37	11	12	13	12
6	F	71	no	19	38	16	15	17	13
7	M	68	yes	16	34	14	18	15	18
8	F	67	yes	8	22	18	6	18	6
9	M	98	College	33	39	17	21	19	29
10	M	63	no	17	34	14	12	16	6
11	M	69	no	13	40	15	18	16	14
12	F	-	yes	20	35	16	15	17	13
13	M	87	yes	24	40	19	21	22	18
14	M	64	no	11	18	17	6	18	9
15	F	63	yes	19	34	15	11	17	12
16	M	69	no	10	37	17	14	15	19
17	F	60	no	11	24	12	10	10	10
18	F	83	no	21	38	14	14	15	12
19	M	67	no	20	24	18	10	15	12
20	M	84	no	10	23	19	9	17	9
21	F	73	no	15	36	19	13	19	13
Means		78		17.81	33.19	16.21	13.81	16.48	13.52
Mean Total Population		85		23.29	34.26	18.45	15.79	18.55	15.39

In the initial study, the mean adjustment score for the white sample was 28.36; for the Negro sample, 19.27. In the follow-up study the mean for the white sample was 35.59, which provided an increase of 7.23. For the Negro sample, the mean in the follow-up study was 33.19, providing an increase in the mean of 13.92. This provided an increase almost twice as great for the Negroes as for the whites. Considering the group as a unit, the average score while in adjustment training was 23.81. The mean score for the group in the follow-up study was 34.26. The increase, therefore, was 10.45, providing a t-ratio of 3.92, which statistically is highly significant.

A comparison of the ratings in skill and adjustment in the initial study, as compared to the follow-up study, may throw further light upon the nature of adjustment. The ratings of 1952 in the initial study, as previously indicated, were obtained by considering the mean of the ratings of not less than three judges. In the follow-up study only one rating was obtained on each client. The same instructions to judges were used, and the same rating forms as in the initial study. The mean adjustment rating for the thirty-eight individuals in the follow-up study is 15.79. Using the data obtained in the initial study for the thirty-eight cases the mean adjustment rating was 18.45. Therefore, instead of securing an increase in adjustment rating, as might be anticipated, the ratings in 1954 decreased by 2.66. Comparable results were obtained in

considering the skill ratings. In the 1954 follow-up study the mean for skill rating was 15.39. The mean skill rating in 1952 was 18.55 with a decrease of 2.16. Although there was little significance in the difference, it would be interesting to cogitate about the reason for this unexpected development. Ratings in themselves are, of course, notoriously unreliable, which may account to a degree for these results. On the other hand, it is entirely possible that in the follow-up study where individuals were not in the sheltered situation of the adjustment center, under daily guidance, that they may have appeared to be less well adjusted than they did in the more sheltered situation. When in the adjustment center where daily instructions were being provided in various fields of skill, it is quite possible that individuals demonstrated a higher degree of skill than they did after they had left the center for two years.

Another interesting comparison may be observed by studying the individual adjustment scores and comparing the 1952 and 1954 results. It will be noted that thirty-five of the thirty-eight individuals received a higher score two years after adjustment training than they received at the time they were in the adjustment center. Only one individual (No. 4) received a lower score, while two individuals achieved the same scores in the follow-up study as they did in the initial study. In an effort to find out why the one individual regressed in adjustment, an inquiry was made from the North Carolina staff, and the following

report was received from the staff psychologist, Dr. Cannon:

Considering the future, I feel that the prognosis of this case is extremely poor. The client's system of attitudes is not readily amenable to counseling and psychotherapy which might be successful to a degree in a long and expensive process. . . . During the client's days in the rehabilitation center, his behavior was characterized by spasmodic successes and crippling reverses and failure. The client appeared to be suspicious, aggressive and uncooperative. Although the facts which have been outlined seem to be rather cold and mechanical, it is only because I am at a loss to express the dozens of hours which have been consumed in counseling with this client and advising him and giving him psychological tests and attempting to provide the emotional security and warmth through surrogate factors which have been proved to be of value to similar clients in the past. It is my opinion that we have, as individuals and as an agency, done everything within our power to aid this man in developing patterns of stable rehabilitation, and, therefore, I feel that, now that he finds himself once again in conditions of need, he will not be able to respond to his need. The complaints which appear in the record seem to indicate that the client has some difficulty in making valid choices in matters of ethics.¹

On the basis of this report it was understandable why the client would have received a higher score while in adjustment training, during which time he was receiving various forms of supportive therapy, and, when this was no longer provided, he apparently reverted to a previous level of precarious adjustment which, according to the limited information available by the above report, indicated a rather high degree of psychotic content. The fact that thirty-five of the thirty-eight individuals were able to achieve a much higher adjustment score following adjustment training is

¹Personal letter from Dr. Cannon, dated May 15, 1954.

extremely encouraging if this can be accepted as the result of the services rendered by the adjustment training center. Before coming to such conclusions, however, it seemed important that further evaluation be made of the instrument itself to determine the degree to which it was reliable and valid in the follow-up study as compared to the initial study.

Analysis of the Instrument

Reliability of the instrument was determined in the follow-up study on the same basis as in the initial study by using the odd-even technique with the Spearman-Brown formula for correction. With this analysis a coefficient of reliability of .87 was obtained which was somewhat lower than the reliability of .94 of the original study. Although somewhat lower than hoped for, it can, nevertheless, be considered as acceptable when considering the circumstances under which the test was administered. Under less controlled situations than those encountered in the initial study, it may be presumed that the instrument would be less reliable. However, there are a number of other factors which may have contributed to the decrease of reliability. It is possible that the technique of requiring the client to make a verbal response may have contributed to the loss of reliability. Also, the settings in which the follow-up study was made may have contributed to this loss, as well as the fact that the test was administered by a number of people who may not have been as careful in administering it, may have further contributed to the present results.

A second correlation was made by comparing the adjustment scores in the follow-up study to the adjustment ratings provided by the counselor who administered the test. This provided a measure of validity of the instrument as used in the follow-up study. Here a validity coefficient of .72 was obtained. This appeared to have taken an opposite trend from the reliability study. The highest correlation for validity obtained in the initial study with correction for attenuation was .79. (See Table X.) It may be concluded therefore, that, when used in situations comparable to that of the follow-up study, the instrument is highly valid, and whatever was measured is being done with considerable success.

Additional correlation studies threw further light on the comparison of these data. In the initial study, when the judges' ratings between adjustment and skill were compared, it was found that the very high degree of correlation indicated that judges were not discriminating to any degree between skill and adjustment in making ratings. When the 1954 ratings were compared it was found that a correlation similarly high was obtained with a coefficient of correlation of .84. This apparently verified the previous conclusion that judges, in rating individuals, did not discriminate to any marked degree when comparing the various skills of the client to adjustment factors. It may be concluded, therefore, that judges think of adjustment as a global matter and do not discriminate between the various components which were considered in this study. This was

further substantiated in comparing the mean adjustment rating of 15.79 with a mean skill rating of 15.39. Obviously there is no difference of statistical significance between these two means, which further substantiates the conclusion that little discrimination occurs in considering these two factors of personality.

If change had occurred in individuals as anticipated from the time they were in the adjustment center until the time of the follow-up study, then a high degree of correlation between ratings in 1952 compared to those in 1955 could not be anticipated. When the adjustment ratings were compared, a coefficient of .34 was obtained. In comparing the skill ratings, however, a correlation of .50 was obtained. Apparently, therefore, less change was observed in the time relationship in skill than was observed in adjustment. However, as the correlations were low in comparing the 1954 results with the 1952 results, it may be concluded that considerable change had occurred from the previous adjustment scores. The difference in adjustment scores appeared to be much greater than the difference obtained in comparing the ratings in skill and adjustment.

Relationship of Intelligence to Adjustment Scores

The 1954 follow-up study also provided data on intelligence quotients on thirty-two of the thirty-eight cases. The intelligence quotients were obtained by the use of the verbal section of the Wechsler-Bellevue test. These were

correlated with adjustment scores to obtain a coefficient of .38.

In the original study in 1952 Dr. J. W. Parrish, of the Office of Psychological Services of the Alabama Institute for Deaf and Blind, reported that he correlated the adjustment scores obtained with the sample in Alabama with the Wechsler-Bellevue, which he administered, himself. In this study, however, even fewer cases were used. The comparison with the twelve white cases resulted in a correlation of .28, while with fifteen Negro cases he obtained a correlation of .21. On the basis of the limited information available on this comparison, it may be concluded that there was a limited degree of relationship between intelligence and adjustment scores. The Pennsylvania study [6] provided rather strong evidence that there is a positive relationship between adjustment and intelligence.

Further evaluation of the I. Q. scores provided additional insight into the nature of the group under study. When considering all of the scores, a mean I. Q. of .85 was obtained. With the Negro sample of eighteen cases the mean I. Q. score was .78. With the fourteen white individuals, the mean I. Q. was .92. When these figures were compared to the adjustment score, it was noted that in the seventeen cases of white individuals with an average I. Q. of .92, the adjustment score was 35.59. In the Negro sample with twenty-two cases and an average I. Q. of .78, the adjustment score was 33.19. There appeared to be some relationship, therefore,

between adjustment and intelligence scores. However, as the difference between the mean intelligence scores of the two groups was considerably greater than the difference between the means of the two adjustment scores, it might be concluded that the relationship is only moderate.

Considering the level of the intelligence of this group as a whole, with a mean I. Q. of .85, in relation to the normal population, this may be a contributing factor to poor adjustment. Of the thirty-two cases, only eleven obtained an I. Q. in the so-called normal range. In ten cases an I. Q. of between 60 and 70 was reported. If 110 were considered the top of the normal range, then only three individuals of the group had above average intelligence while twenty had below average intelligence.

Employment Status

The follow-up study provided data on the current employment status of the clients. The report indicated that, of the thirty-eight cases, twenty-one were employed, and seventeen were not employed. However, in the latter group, three were classified as unemployed because they were attending college and were presumably the more capable and better-adjusted individuals in the group.

It was further noted that thirteen of the twenty-one employed were white and eight Negro. Excluding those in college, there were fourteen unemployed, of which twelve were Negro, and two were white. On the basis of the limited

number in this sample, it may be concluded that there was a high degree of relationship between employability and race. The visually-disabled Negro apparently was at a greater disadvantage as far as employment was concerned than the white individual who was similarly disabled. However, it should be pointed out that the Negro sample in this study was far less capable if the I. Q. can be accepted as an indication of capability.

When the adjustment scores of the unemployed to those employed was compared there was little difference in the level of adjustment as defined in this study. The mean adjustment score for the employed group was 34.75; for the unemployed group slightly higher but statistically insignificant at 35.58. Comparably there was little difference between the white and Negro sample. The mean adjustment score of the employed white was 34.93; the employed Negro, 35.57. Although in each case the score is somewhat higher for the unemployed group, it was so slight that it was statistically insignificant. On the basis of the limited numbers available for this study, it appeared necessary to conclude that there was a higher degree of relationship between employment and intelligence on the one hand and employment and race on the other, than found when comparing employment status to level of adjustment as evaluated in the present study. Internalized changes in the personality as determined by individuals' attitudes appeared to be less

important in the relationship to employment than other factors in the culture in which these individuals were found.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Summary

Historical review. The present study of so-called adjustment training was primarily concerned with the analysis of individual behavior in the so-called "adjustment training centers." These centers were the out-growth of intensified service provided to blinded servicemen during World War II. Rehabilitation service as a right to disabled people in this country had its origin in the increased consciousness for the needs of disabled veterans of World War I. It was after World War I that the English first demonstrated the advantage of specialized services to visually-disabled people when the famous St. Dunstan's was created, which, in turn, appeared to be the model for establishing similar programs for visually-disabled servicemen in this country during World War II. The publicity in periodicals, newspapers, etc., as well as the favorable results achieved in the military-sponsored centers and those provided by the Veterans Administration provided the stimulus for establishing many comparable adjustment training centers for the civilian blind throughout the United States following the termination of World War II. The personnel of the Office of Vocational Rehabilitation,

then under the Federal Security Agency, were concerned with this development and, consequently, promoted a plan of investigation and research in this specialized field to determine what occurred to individuals as the result of the service provided in these centers. Various private and state as well as federal agencies cooperated in promoting the investigation and research reported in this study.

Development of the Michigan study. Under the leadership of Dr. Wilma T. Donahue, of the University of Michigan Institute for Human Adjustment, leadership in this field was demonstrated in a number of ways. A close working relationship was developed with the Michigan Division of Services for the Blind and the University of Michigan Institute for Human Adjustment. A national conference was held in 1947 at the University of Michigan, bringing together nationally-known experts in the field to make an outstanding contribution in this specialized field. Out of this grew the development of a National Psychological Research Council for the Blind. One of the projects of this Council was the development of a publication which pin-pointed the need for research in a number of closely related fields on adjustment to blindness. One of the recommendations provided by the Council was that techniques be developed in an attempt to evaluate adjustment to blindness in connection with the service provided through adjustment centers. The writer was employed early in 1952 to assume the responsibility of

developing techniques which would be helpful in evaluating adjustment to blindness.

Developmental approaches. Characteristic of approaches to problems of this nature, a review of literature was the initial step in the present effort. The purpose of this review was to determine the findings of previous research efforts in the field and to determine whether or not these had resulted in the isolation of certain constants which could be recognized as essential elements in any continued research. The review of literature indicated methodological weaknesses in previous studies in this field and few conclusions generally were agreed upon by investigators. The finest review obtainable to date of previous studies is summarized by Barker, Wright, Myerson and Gonick in the 1953 publication of Adjustment to Physical Handicap and Illness.

The concern of investigators in evaluating adjustment to blindness appeared to be in three particular areas: (1) the problems encountered by the individual in making adjustments to his physical environment. This included those areas in which the individual found it necessary to make certain adaptations in his physical behavior to permit him to function as an independent being; (2) the adjustment of the individual in the social environment. Here investigators were concerned with the problems encountered by the blinded individual to permit him to interact as an independent social being with his fellow men; (3) the third area was

concerned with the psychological problems of adjustment and concerned itself with the feelings and emotions of the blind individual, specifically as related to his disability. These were reflected in the development of certain attitudes towards problems which were the expression of his "inner" adjustment.

It was determined, therefore, that these three areas should be considered in developing techniques for evaluating adjustment with personnel in attendance at training centers. A study of techniques currently in practice at adjustment centers indicated that considerable progress had already been made in evaluating the individual's skills which resulted in a higher degree of independence in his physical environment. Comparably, considerable progress had been made in evaluating the client's ability to adjust to his social environment, although techniques in this area appeared to be less refined than those of the previous area. The least progress appeared to have been made in evaluating the individual's psychological adjustment, probably because of the difficulty encountered in evaluating the more intangible personality factors which might provide insight into the client's emotional life. It was, therefore, decided that this presented one of the greatest problems to the personnel of adjustment centers and that a contribution could be made to the field by developing techniques of evaluating psychological adjustment to blindness.

Emergence of the research problem. Although initially the purpose of the project was considered to be only that of developing evaluation techniques, as the project developed it became obvious that this in itself could not be the sole purpose of the study. As the concept of the purpose of the study broadened it included an analysis of environmental circumstances. Later it was considered essential to include a horizontal evaluation of a section of the sample population to determine to what extent adjustment training resulted in a degree of permanent alteration of behavior patterns. Out of this approach evolved the hypothesis that controlled educational experiences and environmental circumstances specifically designed to meet problems of maladjusted blind individuals could be effective in altering the behavior patterns of such people.

Developing evaluation techniques. It appeared necessary to identify some of the most common problems of psychological adjustment to blindness. The first approach was through the study of literature in an attempt to itemize the most frequently encountered problems of blindness as observed by various investigators. A second approach was to go directly to blind individuals who were in adjustment training and, with the use of prepared interview questions, secure statements from such trainees to determine what they considered to be outstanding problems. A third approach was through the utilization of the staff of the Michigan Division

of Services for the Blind, who reviewed problem cases and summarized what they believed to be characteristic problems in the area. Finally, the investigator's own occupational experience in working with blind children and adults over more than a fifteen-year period provided extensive opportunity to observe problems of blind individuals over an extended period of time.

This approach resulted in the accumulation of a considerable number of statements which appeared to characterize adjustment problems. Certain criteria were developed in an effort to state these problems in clear, concise form in the words of the blind person, himself, in such a way that the intent was not readily obvious. It was essential that disagreement or agreement would delineate between good and poor adjustment. These appeared to fall into six categories. They were later characterized in the study as sub-scales.

The first of these was Morale (M sub-scale) and dealt with the individual's confidence in himself and his ability to cope with problems which he might encounter.

The second (S sub-scale) concerned itself with the outlook of the blind person toward sighted people. Although these appeared to deal largely with the individual's concept of self, this area dealt specifically with the extent to which the blind person possessed a wholesome outlook toward his relationship with sighted people.

The third (B sub-scale) dealt with outlook on problems of blindness. Although the entire scale dealt with attitudes of blind individuals, this particular section focused more directly on the individual's concept of himself as a blind person. An attempt was made here to evaluate the individual's acceptance of the disability in a realistic manner.

The fourth (F sub-scale) concerned itself with family relationships. This dealt with the attitudes of the blind person toward members of his family in the home situation. Although this was generally the relationship of the blind individual to sighted persons, in this group it concerned more specifically the relationship between members of the primary family group.

The fifth (T sub-scale) concerned itself with attitudes toward training. In view of the fact that the project concerned itself with adjustment training, the attitude that the individual had toward training situations would be important in evaluating his level of adjustment.

The final item concerned itself with occupational outlook (O sub-scale). As the final purpose of vocational rehabilitation was that of occupational adjustment, it appeared necessary to evaluate attitudes of the individual as a means of determining his occupational outlook.

This resulted in the development of ninety items divided among the above identified six areas. Various techniques were used in refining the adjustment scale, initially

with a group of graduate students at Michigan State University in a course on personality diagnosis; later at the Michigan School for the Blind with high school students, and finally with adult blind at the Michigan Employment Institution for the Blind and the Industrial Home for the Blind in New York state. With both the blind children and blind adults, certain external criteria were developed against which it was possible to weigh the validity of the various items in the scale. This permitted certain preliminary statistical analysis which resulted in the selection of the items which appeared to hold the most promise as means for discriminating between desirable and undesirable levels of adjustment. This resulted in the more refined instrument of forty-two items which was used in a pilot study. The study was carried on in nine adjustment centers ranging north to south from Minneapolis, Minnesota, to Daytona Beach, Florida, and east to west from New York City to Little Rock, Arkansas. Prior to initiating the pilot study a scale was devised for rating blind individuals on their level of ability in some of the more common skill fields, as well as the adjustment field as defined according to the previous six areas. These were to be used by training personnel in adjustment centers in evaluating each student to provide an external criterion which could be used in validating the instrument. This resulted in the accumulation of data on a total of one hundred fifty-five individuals, which was the entire population in the nine recognized adjustment training

centers at the time the pilot study was in progress. A detailed analysis of the data may be found in the body of this report.

Results of the study. Immediate problems were encountered in analyzing the data when it was found that there was a great divergence in scores between Negro and white subjects. This resulted in the need to analyze the data of the two groups separately. Statistical analysis was pursued, and it was learned that for the Negro section of the population a reliability coefficient of .93 was obtained, while for the white group a reliability of .94 was obtained. An item analysis of each item of the adjustment scale indicated that seventy per cent of the items discriminated significantly between good and poor adjustment. It was interesting to learn that all items which were answered appropriately by agreement failed to discriminate effectively.

In an effort to determine validity, many problems were encountered. A high degree of inconsistency was discovered in comparing the judges' ratings. As judges' ratings were essential in determining validity, it was necessary to correct these in using them as the external criterion to determine the validity of the instrument. Using the data on the ninety-two white subjects, a corrected validity of .47 was obtained, while with the Negro sample the validity coefficient was .31. In an attempt to determine the reason for these low validities, further statistical analysis was

made in comparing various sub-samples of the population. It was found that the highest degree of correlation existed when comparing ratings and scores of individuals within one center. As the largest single group was found in North Carolina, a more complete study was done of this sub-section of the sample. Here it was found that, when comparing adjustment ratings to adjustment scores of the test in the white group, a validity coefficient of .79 was obtained while with the Negro group the corrected validity coefficient was .64. By taking isolated groups in which individuals were well known by judges and where training had occurred over a more extended time, a very satisfactory level of validity was obtained. This was considered to be a better estimate of the true validity of the instrument than that obtained when considering the more heterogenous total sample.

Analysis of factors in adjustment. The primary purpose of this study was to learn more about the contributing factors which were more or less constant in relation to level of adjustment. A detailed analysis of these data in the sample population was made to determine what experiences or circumstances appeared to affect level of adjustment. In considering the total population, both Negro and white, the unmarried individuals appeared to achieve a higher level of adjustment. The highest degree of relationship, however, appeared to be in relation to educational experience. The highest t-ratios for both Negro and white were obtained in

this comparison. There appeared to be a direct relationship between adjustment as evaluated in this study and extent of educational experience. On the basis of this information it was concluded that there was a strong relationship between favorable educational experience and high level of adjustment. The fact that the relationship was particularly strong between attendance at special schools for blind and adjustment, indicated a favorable relationship in this area.

In comparing those individuals with work experience against those who had none, for the total group, significant difference was found, with those individuals who had such experience achieving a higher level of adjustment.

The last comparison which indicated significant relationship when considering the total group was the comparison between individuals coming from homes in which there were no other blind members against those who came from homes in which there were other blind members, with the former achieving higher scores. However, when the data were compared separately for Negroes and whites, no statistical significance was indicated.

In view of the highly significant relationship which was found in comparing educational experience to adjustment, it was considered necessary to make a more detailed analysis of the factors relating to these experiences.

Relationship of educational experience to adjustment to blindness. A detailed study of the data indicated that

there was a distinct positive relationship between the extent of educational experience and level of adjustment to blindness. The more favorable the educational experience, the higher was the level of adjustment achieved. The highest t-ratio obtained in the comparison of general population factors was on the basis of comparison of scores between individuals who had experienced only elementary education compared to those who had experienced secondary education. For this reason a detailed analysis of available data was made to gain further insight to this relationship.

On the basis of race distribution it was noted that the white section of the population had a more favorable educational experience than the Negro. Considering the fact that the Negro section of the population had much lower adjustment scores, it was concluded that one of the reasons such scores were lower was because the educational experience was much less favorable.

When comparing unmarried individuals to those who were married or had marriage experience, it was found in the latter group that a considerably greater number had only elementary educational experience. The original analysis of data revealed that there was a significant degree of relationship between marital status and adjustment scores with unmarried individuals in a more favorable position. It was entirely possible, therefore, that the reason such individuals obtained more favorable scores was that they had more favorable educational experience. It was presumed,

therefore, that in the section of the population represented as unmarried were a considerable number who had been blinded early in life. Such individuals are more typically representative of those attending schools for the blind while the married group more nearly represented the general population.

It was found that those individuals who became blind in childhood and youth had a more favorable educational experience compared to those individuals who became blind later in life. Also, those who had been blind for more than ten years had a more favorable educational experience than those who had been blind less than ten years. It was concluded, therefore, that individuals who had been blind for a greater period of time had a more favorable educational experience and, consequently, obtained more favorable adjustment scores.

The above statement was further substantiated when comparing that section of the population which attended schools for blind against that which had not. Here it was found that there was a highly significant degree of relationship. Two-thirds of those who attended schools for blind had secondary school experience while only one-third of those who did not attend such schools had secondary school experience. Students who had the opportunity of attending the special schools, therefore, appeared to have had a more favorable educational experience and, consequently, achieved higher adjustment scores.

When the data were compared on the basis of type of community, those from rural areas had less favorable educational experience, while those from the more urban areas had more favorable educational experience. Previous data indicated more favorable adjustment scores for those from rural areas. However, the difference was so slight that it could not be considered significant.

When comparing those individuals having less vision against those with more vision, the former appeared to have had a more favorable educational experience. It was presumed that the more severely the individual was handicapped, the more frequently he had special educational opportunities, while those less severely handicapped were more typical of the general population.

When comparing that part of the group having had work experience against those who had none, it was found that the former had a more favorable educational experience and also achieved more favorable adjustment scores.

On the basis of the study of these data, it was definitely established that there was a positive relationship between favorable educational experience and high level of adjustment as determined by the instrument used in this study. In most of the comparisons made in this section it was found that the more favorable the educational experience, the higher was the level of adjustment. The most significant comparison appeared to be among those individuals who had

the experience of attending the special schools for blind compared to those who had not. Because of this significance, further analysis was made of the data in this area.

Relationship of adjustment to attendance at special schools for blind. It was found that according to data available in this study fewer males attended schools for blind than females. It was also noted that females attained higher adjustment scores, indicating a positive relationship between attendance at schools for blind and level of achievement in adjustment.

There was a considerably greater number of unmarried individuals than married individuals in the population which had attended schools for blind. Other studies also indicated that school for blind graduates encountered difficulty in achieving a marital status as compared to the general population. Adjustment, therefore, appeared to be better not because the individual was single but because he had a more favorable educational experience.

When the population was compared on the basis of age at onset of blindness, it was found that of those who became blind under twenty, over half attended schools for blind compared to only seven per cent who attended schools for blind in the group whose blindness occurred after the age of twenty. As previously indicated, those becoming blind under twenty more nearly represented the typical population from a school for blind while those becoming blind after that age more nearly represented the general public.

When comparing data on the basis of number of years blind, there was an increase in attendance at schools for blind as number of years of blindness increased. When comparing this to adjustment scores, it was found that, as the period of blindness increased, adjustment scores increased; this apparently not by reason of the fact the individual was blind over a longer period of time but, rather, that such individuals more frequently attended special schools for blind. The relationship apparently was on the basis of educational experience rather than numbers of years blind.

In comparing those from rural areas to those from urban areas, it was found that the attendance at schools for blind was higher for those from rural areas. Comparing their adjustment scores, it was found that scores for individuals from rural areas were somewhat higher than those from urban areas. It was, therefore, concluded again that the relationship was not on the basis of whether the individual was from rural or urban areas but, rather, whether he had the opportunity of having a more favorable educational experience.

On the basis of work experience, it was found that the majority of individuals who had such experience also attended the special schools. As the adjustment scores of those with work experience were also higher, this provided further evidence of the relationship between favorable adjustment scores and opportunity to attend the special schools.

It was, therefore, concluded that, on the basis of analysis of these data, that definite evidence was presented that individuals who had an opportunity to attend the special schools for blind achieved higher adjustment scores.

Follow-up study. A follow-up study on a selected portion of the initial population two years after the individuals had left the adjustment center revealed significant findings. Of the individuals on whom the follow-up data were provided, only one failed to achieve a higher adjustment score in the follow-up study than in the initial study. It was especially interesting to note that little difference existed between the scores of Negro and white members in the follow-up study. Only conjectures could be made as to why Negro trainees received lower scores during adjustment training than in the follow-up study. The observation could be made that they were able to attain a comparable level of adjustment after participating in adjustment training. It was concluded, therefore, that the type of training provided in adjustment centers was highly effective in bringing about a higher level of psychological adjustment.

An analysis of the instrument itself in the follow-up study indicated some loss of reliability, probably due to the method in which it was used. However, the validity of the instrument appeared to be better in the homogeneous group when used by individuals who knew the clients well, than in the original adjustment training situation. In a

practical situation such as encountered in the follow-up study, it could be, therefore, concluded that the instrument was highly valid.

Comparisons in the follow-up study indicated a positive degree of relationship between adjustment and intelligence scores. It was noted that intelligence quotients of Negroes were somewhat lower than for the white section of the population. This threw additional light on the reason why whites achieved higher adjustment scores than Negroes. Apparently in that section of the population under study, the Negroes not only had less favorable educational opportunity but possessed more limited intellectual potential.

The follow-up study indicated that approximately two-thirds of the group were employed. Those unemployed were predominantly of the Negro race. In view of the fact that the Negroes obtained comparable adjustment scores, even though intellectually less capable, it would be difficult to determine whether unemployment was due to lower capability or the fact that opportunities were less prevalent for individuals of the Negro race. Race, more limited capability, and environmental circumstances were probably combined in contributing to unemployability of Negroes in that section of the population studied.

Conclusions

On the basis of information presented in this summary, the following conclusions are presented:

1. It is possible by the use of techniques developed in this study to obtain an objective evaluation of individuals' level of psychological adjustment to blindness by sampling attitudes towards problems encountered as the result of visual disablement.

2. There is a highly significant relationship between the degree of favorable educational experience and level of adjustment achieved.

3. Special educational opportunities are related to favorable adjustment. This is illustrated in (a) better adjustment on the part of individuals attending special schools for blind, and (b) higher level of adjustment of individuals who attended adjustment training centers.

4. Many other factors appear to contribute to adjustment besides educational experience. Among the most important observed in this study are (a) the status of the individual in the family group; (b) the status of the individual in society in general; (c) level of intellectual potential.

5. Adjustment training centers which provide educational experience over a more extended period of time are more effectual than those providing service for a brief duration.

6. The study has as a whole provided positive evidence to support the hypothesis that the behavior pattern of maladjusted individuals as defined in this study can be

altered when such individuals are subjected to an educational experience in a controlled environment specifically designed to meet their needs.

Suggestions for Further Research

A few suggestions for additional research are presented as the out-growth of the present project. It would be valuable to collect data for a more extended period of time from the North Carolina Center so that a greater number of cases could be available on which the validity and reliability of the adjustment scale could be computed. It might also be well to collect data from other centers, provided a substantial number could be collected, to make a similar analysis of the data from such centers to see if comparable results would be achieved to the analysis of the North Carolina data.

It would appear desirable, also, if a "Before and After" study could be made in a center in which the scale would be administered upon admission and again at the time that the training was terminated to determine if the training provided in the adjustment center resulted in a change from the time the individual was admitted until he was released. The continuation of the follow-up project in which the scale would be administered at a longer interval after the client had left the center to determine level of adjustment would provide further practical validation of the adjustment scale, and provide further evidence of the value of such training.

It may be presumed that there are many other problem areas encountered by individuals in making an adjustment to blindness. Additional research should be initiated in other areas which might contribute to the adjustment scale. Since the present project was initiated, it has been noted by personnel in some of the training centers that the individual's outlook to his economic situation is an important one in his adjustment to blindness. Those who are completely satisfied with a public assistance grant may find it difficult to accept the need for development of skills to permit a higher degree of independence. Consideration might also be given to the problem of psychosexual adjustment, which appears to be an important one in many cases. In view of the findings in this project of the importance of the family relationship in evaluating adjustment, it would appear that this closely allied area might merit further investigation.

In view of the differences encountered in the present project between white and Negro samples, it would seem that further investigation into the problems of the Negro blind would be worth while. Possibly a scale could be designed for the use of this particular group which might be more effective if constructed with their specific problems in mind.

In view of the low reliability between judges' ratings with the use of the five-point scale, it would appear that additional study might be made in an attempt to standardize the rating scale itself with the goal of increasing the reliability of this technique.

The fact that the present adjustment scale was composed predominantly of negatively-stated items might raise some question among those who will be using this material. It might be well to consider the possibility of expanding the present scale to include a group of positively-stated items in an effort to develop a more effective instrument.

The development of more effective techniques to evaluate the blind individual's competence in social adjustment should also prove to be a fruitful field of research. Although there are currently methods of evaluating social adjustment at various training centers, it would seem that this might well be done on a more scientific basis. Possibly individuals interested in the field of sociometrics would be able to assist in this particular area of investigation. ✓

These suggestions are not intended to be all-inclusive but are merely some of the more prominent areas of investigation which come to mind as the outgrowth of the present attempt to develop techniques to evaluate adjustment to blindness.

Those scholars who do choose to continue to study this particular disabled group will undoubtedly agree that this presents a frontier which to date is relatively unexplored. It is the writer's sincere hope that this study may stimulate others to seek further knowledge in this field as a means of helping those who are visually handicapped to achieve the democratic integration to which they are entitled.

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APPENDICES

APPENDIX A

USING THE ADJUSTMENT TEST

Like any personality test, the Michigan Test of Adjustment to Blindness must be used with extreme caution. Presumably it will be employed in combination with other clinical data and should be helpful in providing an objective evaluation of the areas previously defined.

In the initial study a sub-scale score was secured in each of the categories defined. However, an analysis of these data indicates that adjustment should be considered more global in nature. Therefore, it seemed advisable to consider only the over-all adjustment score in an effort to evaluate the individual's level of adjustment.

The instrument could be used as a counseling tool in an effort to determine problem areas which the counselee is encountering. The original purpose of the instrument was to provide a technique of evaluating the effectiveness of training obtained by individuals in adjustment training centers. On the basis of the information obtained in the follow-up study, it was concluded that the instrument was effective in evaluating the individual's change of attitude as the result of such training and presumably the changes which occurred in the individual's level of adjustment to blindness.

Care must be exercised in interpreting results to the client, as is true in any similar test. The interpretation, therefore, would have to be general rather than specific and given with results of a battery of tests rather than interpreted alone. How the individual feels about problems of blindness would be more important than the interpretation of test results in this or any other comparable test.

SUGGESTIONS FOR ADMINISTRATION OF THE ADJUSTMENT SCALE

If reliable and valid results are to be obtained, it will be necessary to follow a uniform procedure in administering the test of adjustment to blindness. On the basis of experience in the follow-up study, better results can be attained if the client is not requested to make verbal responses to the psychometrist. The scale might be even more effective if placed on a tape and used with a tape recorder as a means of making the contact more impersonal. Any suitable sorting technique can be arranged by using cards and some kind of receptacles in which cards can be placed. The techniques of requesting the client to place cards in one area for items on which he agrees and in another area for those in which he disagrees should, however, be maintained. The instructions used in administering the test could be altered to a limited degree without altering the results. However, it would seem advantageous to write out such instructions and maintain uniformity in giving such instructions. The following instructions were used in the pilot study:

This is a survey of opinions about matters concerning blind people. This is not a test. There are no right or wrong answers. The purpose of the survey is to find out how blind people in different circumstances respond to problems they frequently encounter.

In front of you is a tray with three compartments (or "In front of you are three containers," if this describes the situation). The center compartment has a pack of cards. There is one card for each statement in the survey. Each statement will be read twice so that you will have a better chance to understand it. If you agree with the statement, pick up the first card

and place it in the right compartment. If you disagree with it, place it in the left compartment. Remember, place the card to the right if you agree or think it is right and to the left if you disagree. Wait until the second reading before you place the card, but be sure and put every card in either the right or left compartment, even if you feel uncertain about your decision. You need not be afraid of what others may think. Your opinion will be kept in strict confidence.

Here is No. 1 statement: "In times like these, one is inclined to give up hope of getting ahead." (Repeat No. 1 statement.) If you agree, place the top card in the right compartment. If you disagree, place it in the left compartment. Remember, there are no right or wrong answers. Your decision should express your opinion as honestly as you can give it. Are there any questions?

(Instruction after every sixth statement.) The next card should be a sheet of sandpaper. If so, pick it up and place it on the table at the back of your tray. If you do not find the sandpaper, please raise your hand. (If an error is discovered, it might be preferable to make a note identifying the group of cards in which the error occurred and ask the client to remain for a moment at the end of the test and re-read the group of statements in which the error occurred.)

This is the next statement in the survey of opinions.

(At the termination of the test) The last statement was the final one. Please leave your cards as you have sorted them so your decisions can be recorded in written form.--Do you have any questions or comments about the survey?

We wish to thank you for your cooperation. Your opinions should be helpful to those concerned with training blind people to permit them to improve their services in future training. That's all; thank you.

SURVEY OF OPINIONS RELATING TO PROBLEMS OF BLINDNESS*

1. In times like these, one is inclined to give up hope of getting ahead.
2. A blind person would be better off if he chooses mainly sighted friends.
3. A person might as well accept the fact that blindness makes people pretty helpless.
4. One trouble with many families is that they expect too much from a blind person.
5. Blind people are not getting good jobs because they are not getting good training.
6. A blind person has to accept the fact that there are many jobs he simply cannot do.
7. It is difficult for a person to think clearly these days.
8. There are altogether too many sighted people working in agencies serving the blind who do not know the problems of blind people.
9. Many people become blind as a kind of punishment for something they did.
10. A blind person cannot find as much understanding at home as he can find somewhere else.
11. A good education is a great comfort to a blind person who is out of work.
12. A blind person who has ability and is willing to work hard has a good chance of being successful.
13. Life is just one worry after another in these times.
14. Because they know each other's problems better, the blind can put their trust in other disabled people more than those not disabled.
15. When you are blind, you are constantly worried about what may happen to you.

*This title was used in administering the test to blind persons because it was felt that it might disguise the real purpose of the test to a limited degree.

16. There are too many members of a blind person's family who are just too curious about one's personal affairs.
17. The more education a blind person has, the better he is able to enjoy life.
18. In deciding production rates, employers should make considerable allowance for a person's handicap.
19. No one cares much what happens to you.
20. It may be dangerous for a blind person to do something alone, but it is better than asking for help.
21. It is only natural for blind people to do an awful lot of day dreaming.
22. It is pretty hard for a blind person to keep a pleasant disposition at home.
23. With proper training, a blind person can do just about anything a sighted person can do.
24. Even though you aren't highly skilled, you can do just as well if you really want to.
25. Life is just a series of disappointments.
26. Most people who work with the blind are really interested in helping them.
27. With the progress being made by medical science, there is little doubt that most blindness will be curable in the near future.
28. One trouble that many blind people have is that they can't trust their families.
29. Most of the training offered to the blind is useless in really helping them with their problems.
30. Employers have a way of expecting a blind person to do things that aren't required of others.
31. Most people are usually happiest during their childhood.
32. Most sighted people just pretend they like you.
33. There are things worse than being blind.
34. It is all too true that a blind person's relatives don't like others to know there is a blind person in the family.

35. A lot of job training offered blind people is just a way of getting them to work for nothing.
36. It is more important for a blind person to have pull than to have ability.
37. It is great to be living in these exciting times.
38. Sighted people expect the blind to do things that are impossible.
39. A blind person shouldn't have to meet the same standards as others.
40. Some people in the family act as though the blind person is a burden to them.
41. A training center gives a blind person a chance to learn to be independent.
42. Because they have such a tough time getting to work, employers should overlook tardiness of blind employees.

APPENDIX B

SURVEY OF OPINIONS RELATING TO PROBLEMS OF BLINDNESS

Training center _____

Client's name _____ Weeks of training _____

Date of birth _____ Sex: Male _____ Female _____

Marital status: Single _____ Married _____ Divorced _____ Widowed _____

Age at onset of blindness _____

Degree of vision: Light perception or less _____ More than
light perception _____

Attended school for blind: Yes _____ No _____ Grade completed in
school _____

Home in rural area _____ Town up to 5,000 _____ City
over 5,000 _____

Work experience as a blind person: Yes _____ No _____ Number
of years _____

Kind of work _____

Are there other blind people in client's family? Yes _____ No _____

SCORE SHEET

1. _____ D	6. _____ A	11. _____ A
2. _____ D	7. _____ D	12. _____ A
3. _____ D	8. _____ D	13. _____ D
4. _____ D	9. _____ D	14. _____ D
5. _____ D	10. _____ D	15. _____ D

Score Sheet (Continued)

16. _____ D	25. _____ D	34. _____ D
17. _____ A	26. _____ A	35. _____ D
18. _____ D	27. _____ D	36. _____ D
19. _____ D	28. _____ D	37. _____ A
20. _____ D	29. _____ D	38. _____ D
21. _____ D	30. _____ D	39. _____ D
22. _____ D	31. _____ D	40. _____ D
23. _____ D	32. _____ D	41. _____ A
24. _____ D	33. _____ A	42. _____ D

SCORING THE TEST

If some type of container or tray is being used, the information thus obtained should be transferred to a printed score sheet upon completion of the test. A score sheet may be set up comparable to that on the preceding page in which consecutive numbers from one through forty-two are listed. The letters "A" or "D" should be listed after the number in the order indicated previously. Space should be allowed after each number to record the individual's response. After the responses are recorded the test can be scored by checking the number of appropriate responses. The total number of appropriate responses will represent the individual's adjustment score.

It should be pointed out that the norms provided in Tables I and II of the Appendix were obtained from data compiled with individuals in adjustment training. As individuals were sent to centers because they had made poor adjustment to date, the scores obtained from such individuals would be quite different from those in any other situation. If the test is used in other situations, apparently it will then be necessary to gather sufficient data in the particular situation in which it is being used to establish norms more truly representative of the group under study.

NORMS

Two types of norms are presented in this appendix. These norms were computed on the basis of standardization data with ninety-two white and sixty-three Negro subjects. The sub-scale norms are provided in Table I while the norms of the total adjustment score are in Table II. The material presented in Table I is presented for those who have an academic interest in this analysis. However, for practical application, the norms available in Table II would seem more appropriate. The study indicates that adjustment should be thought of in global terms rather than being made up of sub areas. Percentiles are computed on the basis of the material compiled in the pilot study. Norms are provided for Negroes and whites separately because of the marked difference in distribution found for these groups. The norms for Negroes were established on clients from Alabama, Florida and North Carolina. It is, of course, doubtful if these norms would be valid when used on northern Negroes, where training is provided on a non-segregated basis.

Norms for white subjects were obtained from the following centers: Talladega, Alabama; Little Rock, Arkansas; Chicago, Illinois; Topeka, Kansas; Minneapolis, Minnesota; Brooklyn, New York; Butner, North Carolina, and Dayton, Ohio.

TABLE I

NORMS ON SUB-SCALES FOR TRAINEES IN ADJUSTMENT CENTERS

Score	Frequency		Per Cent Receiving Score		Percentile	
	White	Negro	White	Negro	White	Negro
"M" (Morale)						
1	1	13	1	20	1	20
2	6	15	7	24	8	44
3	12	10	13	16	21	60
4	25	7	27	11	48	71
5	21	8	23	13	71	84
6	15	5	16	8	87	92
7	12	5	13	8	100	100
"S" (Sighted)						
1	4	20	4	32	4	32
2	4	11	4	17	8	49
3	13	7	14	11	22	60
4	23	15	25	24	47	84
5	21	6	23	9	70	93
6	20	3	22	5	92	98
7	7	1	8	2	100	100
"B" (Blindness)						
1	2	18	2	29	2	29
2	6	11	7	17	9	46
3	11	15	12	24	21	70
4	15	6	16	10	37	80
5	25	7	27	11	64	91
6	26	4	28	6	92	97
7	7	2	8	3	100	100
"F" (Family)						
0	4	12	4	19	4	19
1	2	13	2	21	6	40
2	9	7	10	11	16	51
3	9	8	10	13	26	64
4	12	9	13	14	39	78
5	17	8	18	13	67	91
6	19	2	21	3	88	94
7	20	4	22	6	100	100

Negro N = 63

White N = 92

TABLE I (Continued)

Score	Frequency		Per Cent Receiving Score		Percentile	
	White	Negro	White	Negro	White	Negro
"T" (Training)						
1	1	0	1	0	1	0
2	2	1	2	2	3	2
3	9	18	11	28	14	30
4	24	13	26	21	40	51
5	30	18	32	28	72	79
6	24	13	26	21	98	100
7	2	0	2	0	100	
"O" (Occupational)						
1	0	2	0	3	0	3
2	6	26	7	41	7	44
3	7	10	8	16	15	60
4	13	8	14	13	29	73
5	30	11	32	17	61	90
6	29	6	31	10	92	100
7	7	0	8	0	100	

TABLE II

NORMS FOR ADULT TRAINEES IN ADJUSTMENT CENTERS

Score	Frequency		Per Cent Receiving Score		Percentile	
	White	Negro	White	Negro	White	Negro
8	0	4		6		6
9	0	3		5		11
10	0	5		8		19
11	1	6	1	10	1	29
12	1	1	1	2	2	31
13	2	2	2	3	4	34
14	1	2	1	3	5	37
15	2	1	2	1	7	38
16	3	2	3	3	10	41
17	1	1	1	2	11	43
18	1	3	1	5	12	48
19	1	3	1	5	13	53
20	3	3	3	5	16	58
21	2	4	2	6	18	64
22	0	1		1	18	65
23	2	4	2	6	20	71
24	2	0	2		22	71
25	4	3	4	5	26	76
26	3	1	3	2	29	78
27	5	3	5	5	34	83
28	4	0	4		38	83
29	7	3	8	5	46	88
30	5	1	6	1	52	89
31	6	0	7		59	89
32	8	1	9	2	68	91
33	7	4	8	6	76	97
34	8	0	9		85	97
35	5	0	6		91	97
36	5	1	6	1	97	98
37	2	1	2	2	99	100
38	1	0	1		100	

Negro N = 63

White N = 92

APPENDIX C

COMPARISON OF ORIGINAL ITEM ANALYSIS TO FINAL ITEM ANALYSIS

Part 1 -- "M" (Morale) Sub-Scale

Old No.	Diff. of %	T Ratio	New No.	Diff. of %		T- Ratio	
				White	Negro	White	Negro
55	48	3.71	1	48	62	3.81	4.53
19	20	1.49	7	27	75	1.93	6.94
31	24	1.75	13	61	69	5.21	5.94
37	13	.99	19	30	81	3.16	8.26
49	33	2.77	25	35	94	2.13	17.27
73	21	1.71	31	39	44	3.42	3.75
85	13	1.33	37	4	6		

Part 2 -- "S" (Sighted) Sub-Scale

8	9	.96	2	53	63	4.24	4.85
14	13	1.09	8	13	19	.93	1.94
20	52	4.33	14	52	63	4.13	5.20
38	35	2.69	20	48	63	3.90	5.20
44	16	1.42	26	13	00	1.24	
74	31	2.82	32	30	81	3.12	8.26
86	35	3.13	38	48	82	2.89	8.12

APPENDIX C (Continued)

Part 3 -- "B" (Blindness) Sub-Scale

Old No.	Diff. of %	T Ratio	New No.	Diff. of %		T - Ratio	
				White	Negro	White	Negro
9	30	2.26	3	44	81	2.65	8.26
21	13	1.31	9	35	56	3.57	3.92
27	16	1.15	15	78	50	3.88	4.03
51	24	1.82	21	26	56	1.87	3.92
57	17	1.22	27	26	38	1.91	3.14
63	13	1.51	33	17	-12	1.12	
69	25	1.95	39	61	81	3.56	8.26

Part 4 -- "F" (Family) Sub-Scale

4	37	3.11	4	52	82	5.00	8.12
22	28	2.07	10	44	44	3.33	3.19
46	31	2.35	16	78	57	8.96	4.22
52	42	3.72	22	61	82	3.74	3.12
58	22	1.86	28	57	44	5.53	2.77
76	24	1.76	34	74	81	8.04	8.26
88	23	1.74	40	65	56	5.80	4.52

APPENDIX C (Continued)

Part 5 -- "T" (Training) Sub-Scale

Old No.	Diff. of %	T Ratio	New No.	Diff. of %		T - Ratio	
				White	Negro	White	Negro
5	13	.94	5	48	62	3.78	5.18
23	13	.99	11	-9	-25		
47	12	1.06	17	0	-12		
53	28	2.07	23	-10	13		1.55
65	17	1.29	29	35	75	2.69	6.52
71	12	.89	35	48	75	4.61	7.14
77	17	1.67	41	9	-12		

Part 6 -- "O" (Occupational) Sub-Scale

6	16	1.42	6	4	12	.32	1.06
18	25	2.55	12	9	0		
24	29	2.15	18	61	75	3.56	6.94
66	23	1.76	24	30	6	2.40	
72	18	1.42	30	48	75	4.63	6.52
78	28	2.12	36	52	88	5.00	10.86
90	20	1.52	42	57	88	5.53	10.86

HV1715 Fitting, Edward A.
F Analysis of factors
relating to adjustment to
blindness.

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F Analysis of factors
relating to adjustment
to blindness.

TITLE

DATE DUE

BORROWER'S NAME

1-29-91
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Nora Duffin
Shirley

